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Via Electronic Mail

January 20, 2017

Joseph A. Gowers Remedial Project Manager Emergency and Remedial Response Division USEPA Region II 290 Broadway, 19th Floor New York, New York 10007-1866

Re: Ringwood Mines/Landfill Superfund Site

Letter Report of Focused OCDA Investigation

Dear Mr. Gowers:

On behalf of Ford Motor Company (Ford), this letter report presents the findings and results of the focused investigation within the O'Connor Disposal Area (OCDA) at the referenced Site, as presented in a Work Plan dated November 8, 2016, which was approved by the USEPA on November 23, 2016. The objective of the focused investigation was to assess whether or not a localized source of 1,4-dioxane exists within the former paint waste removal area within the OCDA. As shown in the enclosed Figure 1, this former paint waste removal area is hydraulically up-gradient of groundwater monitoring well OB-17 in which groundwater samples have exhibited a concentration of 1,4-dioxane above its New Jersey Interim Specific Groundwater Quality Criterion (ISGWQC).

In summary, a total of 43 samples (41 native samples and two blind duplicates) were collected from a sampling grid within the former paint waste removal area. 1,4-dioxane was not detected in any of the 43 samples collected, and a localized source of 1,4-dioxane was not identified. In addition, paint waste was not identified in any of the borings.

At the request of the USEPA, in addition to the soil samples, two samples of paint waste surficial fragments were also collected from the OCDA during the field activities, and were also analyzed for 1,4-dioxane. The laboratory analytical results indicate that no 1,4-dioxane was reported in either of the two paint waste samples.

The work scope and findings of the targeted soil investigation are provided in detail below.

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Field Procedures

Mobilization to the Site for performance of the boring program occurred on December 12, 2016, at which time the boring locations were field staked using GPS coordinates and access to the drilling locations was cleared with a small bulldozer. Five boring locations (2, 3, 5, 11, and 14) were field adjusted to enable drill rig access. The final boring locations in relation to the sampling grid shown in the approved Work Plan are shown in the attached Figure 1. As shown, the boring location adjustments were nominal and did not affect the overall program of sampling within the former paint waste removal area.

Borings were advanced using a track-mounted sonic drill rig during the period December 13-15, 2016 and all activities completed and equipment demobilized on December 16, 2016. Continuous soil cores were attempted at each location; however, due to the granular nature of the soils at some locations (i.e., loose sand, stone aggregate that would not fit in the core sleeve), continuous core sample collection was not possible at every boring due to a lack of recovery. Finer-grained soils did remain in the core sleeve which are the preferential sample material since, if 1,4-dioxane was present, it is more likely to have been retained in finer-grained soils than on coarser material. The Boring Logs are provided as Attachment A.

Soil cores were collected in acetate sleeves. Upon retrieval, each soil core was subjected to the following:

- Screening with a Photoionization Detector (PID);
- Visual inspection for any apparent evidence of waste, paint waste, discoloration, or any other indication of potential environmental concern;
- Olfactory evidence of odors; and
- Evidence of having encountered the groundwater table (i.e., saturated soil).

Samples for laboratory analysis were collected based on the results of the above screening process with samples biased towards the following:

- A PID reading;
- Evidence of discoloration, waste, etc.;
- A zone indicating any odor; or
- If none of the above were indicated, within a representative portion of the core and within finer-grained material.

The attached Table 1 summarizes the boring locations, samples collected for laboratory analysis at each boring location, and the results of the field screening process. In addition, two blind duplicate samples were collected for quality control purposes, and the locations are noted in the table.

Of note, at the time of the focused investigation, the depth to groundwater at wells OB-17 and OB-22 were checked. The groundwater elevation at OB-17 was 485.15′, consistent with recent

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mapping (i.e., the annual sampling event at which time the elevation was 485.7′). The groundwater elevation at OB-22 was at approximately elevation 505′, or approximately 8 feet higher than recent mapping (i.e., the August 2016 annual sampling event). Therefore, within the area of the focused investigation the groundwater table was encountered at a higher elevation (i.e. at a shallower depth below ground surface) than indicated based on prior depth to overburden groundwater data, likely as a result of antecedent rainfall and ongoing snow melt. While the approved Work Plan included the collection of only one sample below the groundwater table, as a precautionary measure to account for the more typical depth to groundwater and the apparent water table fluctuation, at 12 of the 14 boring locations, more than one sample was collected in the saturated zone below the water table, and up to depths of approximately 25 feet, consistent with the intent of the approved work plan.

As noted above, paint waste was not observed at any of the boring locations. Since small, visible remnants of paint waste (i.e., fragments) are present on the surface within the OCDA, and at the request of the USEPA, two paint waste samples were collected for laboratory analysis of 1,4-dioxane along with the soil samples collected in the focused investigation.

Laboratory Analysis

Each soil sample collected for analysis was labeled as B-2016-(boring location)-(sample interval). The samples were shipped on ice, under chain of custody to Alpha Analytical for analysis for 1,4-dioxane via USEPA Method 8270 SIM with isotope dilution. The Alpha Analytical laboratory reports, which include the chain of custody records, and the Cadena data validation reports are enclosed as Attachments B and C, respectively. As shown, the analytical result for each of the soil samples was validated without qualification.

In addition, the two paint waste samples were designated PW-1 and PW-2. In a conversation with the laboratory, instructions were provided to collect the portion of the paint waste samples for analysis from the interior of each paint waste sample so that the portion that would have been the least subject to weathering was targeted for analysis.

Results

As shown in the Boring Logs provided as Attachment A, the soils encountered within the former paint waste removal area within the OCDA were indicative of the imported fill used to backfill the former paint waste removal area. The predominant soil type is a brown/tan sand. Typically at depth, mine tailings were also encountered and are characterized as gray, dark gray, or black fine to coarse-grained material, as described on the boring logs. Encountering mine tailings is indicative that the sample intervals were extended to points below the prior excavation in the area of investigation, as was intended in the approved work plan, and accomplished by collecting more than one sample (only one sample was planned per the approved work plan) below the water table.

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As shown in Table 1, of the soil samples collected, PID readings were measured in three samples all at the boring B-2016-3 location. Each of the samples that exhibited a PID reading was submitted for laboratory analysis of 1,4-dioxane. As also noted on Table 1, the sample from the 14′-14.5′ depth interval at this location also had a petroleum-like odor, which is the only sample that exhibited a noticeable odor.

Finally, as also shown in Table 1, of the 41 soil samples collected, three exhibited faint discoloration, although, based on review of historic reports and field observation of the characteristics of the paint waste during investigation activities, not indicative of paint waste. These samples were encountered at boring locations B-2016-6, B-2016-7, and B-2016-11. Each of these samples were also submitted for laboratory analysis for 1,4-dioxane.

Review of the Alpha Analytical reports indicates that 1,4-dioxane was not detected (ND) in any of the 41 soil samples nor in the two paint waste samples collected. All results are therefore ND at a typical method detection limit of approximately 4.0 ug/kg.

Please contact us if you have questions or comments on the content of this report.

Sincerely,

CORNERSTONE ENGINEERING GROUP, LLC

Gary J. DiPippo, Professional Engineer.

NJ Lic. # 24GE02646100

Timothy R. Roeper, PG

Client Manager, Hydrogeology

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Figure 1: OCDA Sample Locations, December 2016

Table 1: OCDA Soil Sample Summery Table

Attachment A: Boring Logs

Attachment B: Alpha Analytical Laboratory Reports

Attachment C: Cadena Validation Reports

cc: B. Bussa, Ford

L. Dodge, Excel

T. Green, Ford OGC.

R. Harwood, Excel

J. Lagrotteria, LeClairRyan

W. Monahan

D. Laguzza, LeClairRyan

C. Coslett, de maximis

K. Petrone, NJDEP

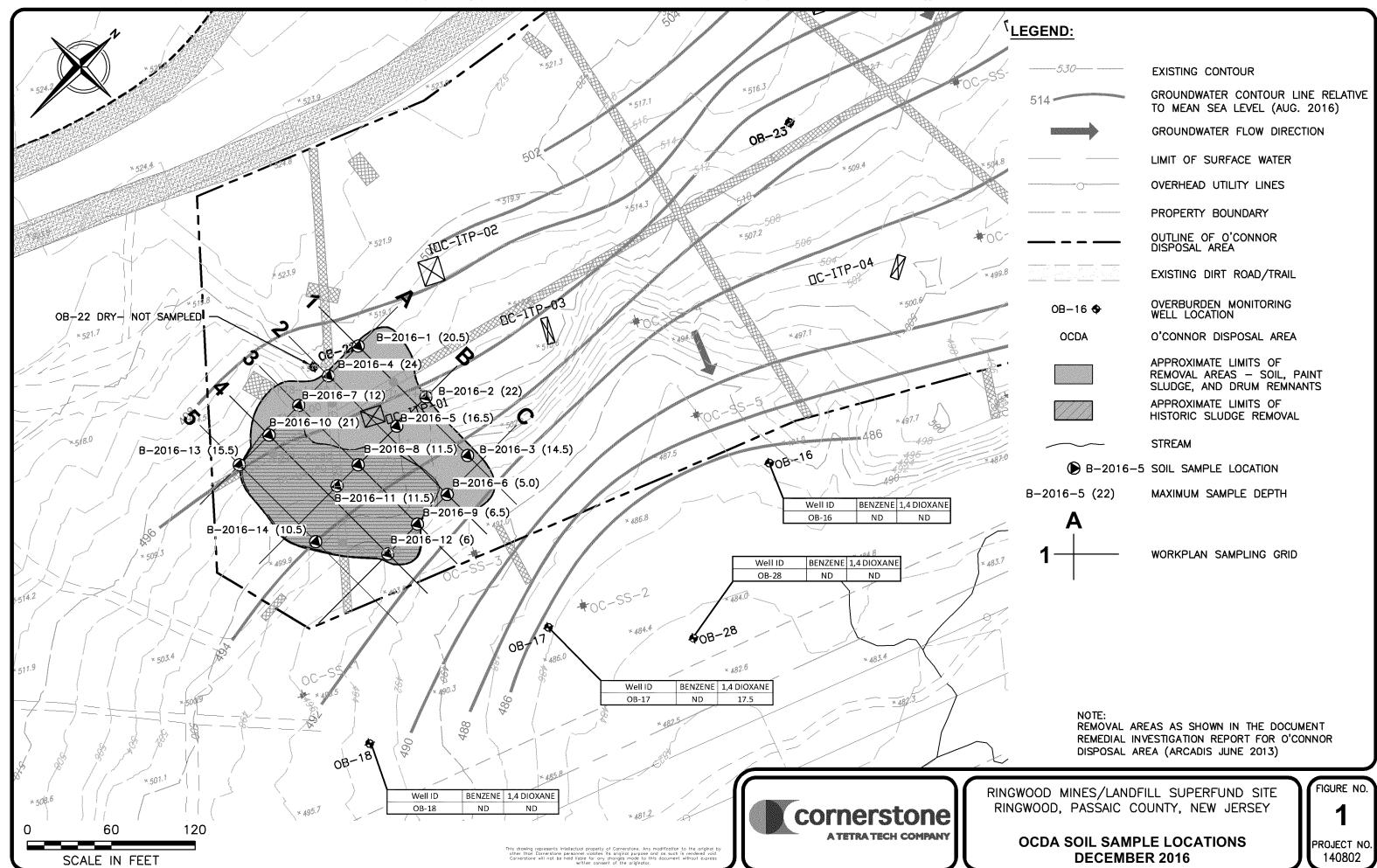


Table 1
OCDA Soil Sample Summary Table
1,4-dioxane Testing in Former Paint Waste Removal Area
December 2016

Boring ID	Sample Interval	Above/Below Water Table	PID Reading (ppm) Y/N -result	Coloration or Odor detected	1,4-Dioxane Result*
	5.0 - 5.5	Above	N	NO	ND (<4.25)
P 2017 1	9.0 - 9.5	Below	N	NO	ND (<4.28)
B-2016-1	13.5 - 14.0	Below	N	NO	ND (<4.36)
	20.0 - 20.5 (DUP)	Below	N	NO	ND (<4.08)/ND (<3.80)
	4.5 - 5.0	Above	N	NO	ND (<3.81)
B-2016-2	11.0 - 11.5	Below	N	NO	ND (<3.95)
	16.5 - 17.0	Below	N	NO	ND (<3.89)
	21.5 - 22	Below	N	NO	ND (<4.90)
	5.5 - 6.0	Above	Y - 7 ppm	NO	ND (<4.32)
B-2016-3	9.5 - 10.0	Below	Y - 14 - 44 ppm	NO	ND (<4.41)
D-2010-3				sweet, petroleum-like odor	
	14.0 - 14.5	Below	Y - 0 - 1 ppm	noted	ND (<4.98)
	8.5 - 9.0	Above	N	NO	ND (<4.10)
	11.0 - 11.5	Below	N	NO	ND (<4.31)
B-2016-4	15.0 - 15.5	Below	N	NO	ND (<4.40)
	20.0 - 20.5	Below	N	NO	ND (<4.09)
	23.5 - 24.0	Below	N	NO	ND (<4.09)
	0.5 - 1.0	Above	N	NO	ND (<4.22)
B-2016-5	11.0 - 11.5	Below	N	NO	ND (<4.05)
	15.0 - 15.5	Below	N	NO	ND (<4.15)
	1.5 - 2.0	Above	N	NO	ND (<4.07)
B-2016-6	4.5 - 5.0	Below	N	purple/blue color noted, not paint waste	ND (<4.04)
B-2016-7	9.0 -9.5	Below	N	discoloration noted, not paint waste	ND (<3.92)
	11.5 - 12	Below	N	NO	ND (<4.78)
	4.5 - 5.0	Below	N	NO	ND (<4.16)
B-2016-8	9.0 - 9.5	Below	N	NO	ND (<4.00)
	11.0 - 11.5	Below	N	NO	ND (<4.41)
	2.0 - 2.5 (DUP)	Above	N	NO	ND (<3.88)/ND (<3.89)
B-2016-9	6.0 - 6.5	Below	N	NO	ND (<4.00)
	4.0 - 4.5	Above	N	NO	ND (<3.97)
	9.0 - 9.5	Below	N	NO	ND (<4.11)
B-2016-10	11.5 - 12	Below	N	NO	ND (<4.44)
	20.5 - 21.0	Below	N	NO	ND (<4.34)
	5.0 - 5.5	Below	N	NO	ND (<4.53)
B-2016-11	11.0 - 11.5	Below	N	purple coloration noted, not paint waste	ND (<4.12)
	4.0 -4.5	Below	N	NO	ND (<4.36)
B-2016-12	5.5 - 6.0	Below	N	NO	ND (<4.41)
	5.0 - 5.5	Above	N	NO	ND (<3.93)
B-2016-13	10.0 - 10.5	Below	N	NO	ND (<4.17)
_ 2010 10	15.0 - 15.5	Below	N	NO	ND (<4.03)
	4.0 - 4.5	Below	N N	NO	ND (<4.12)
B-2016-14	10.0 - 10.5	Below	N	NO	ND (<4.00)

^{*}ND (<3.80) = Non-Detect, Method Detection Limit in ug/kg shown in parentheses

ATTACHMENT A - BORING LOGS

B-2016-1 B-2016-1	
B-2016-2	
B-2016-3	
B-2016-4	
B-2016-5	
B-2016-6	
B-2016-7	
B-2016-8	
B-2016-9	
B-2016-10	
B-2016-11	
B-2016-12	
B-2016-13	
B-2016-14	

Cilent				Boring	ID.	Cornersto	one Engineering Group, LLC
Project				Locatio		(co	rnerstone environmental
Drilling CFord N	lotor Company				B-2016-1	Evelation estimated ba	ised on OB-22
Drilling Contra	lotor Company		Com	Date pletion Date	Ringwood, NJ	Easting	140802-018
Drilling Contra Drilled by Ford No. Logged by Drill Rig	Summit Drilling Bill Shinn		Bore Bore	hole Depth (ft bgs) hole Dia. (in)	12/13/16 12/14/16	Surface Elev. (ft)	841240.000 556120.000
Drilling Metho	Fraste	US	scs		24.00 3	DTW (ft. bgs) Horizontal Datum	515.00 9.00
Sample Meth						Vertical Datum	0.00
Notes:	Sonic <u>H</u>	THE REAL PROPERTY OF THE PERTY					
DEPTH (mpqq)	SAMPI	SOIL	TYPE	SOIL / ROO	CK DESCRIPTION		REMARKS
\$15 			N/A	GROU No Recovery	ND SURFACE		
5	B-2010-1-(5-5.5)		SM N/A	Orange, Tan m SAND, li	ittle Silt, little mf Gravel		
▽ ▼	B-2016-1-(9-9.5)		GM	SILT, some mf Sand, so	me cmf Gravel, Wet		
10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0000	SM SM	Tan mf Sand, some Silt, Dark Gray SILT/Mine Ta Saturated	Damp illings, some f Sand,		
500 0	B-2016-1-(13.5-14)		sw	Brown/Orange cmf SAN	D, little f Gravel, Damp		
15	26		SM	Gray SILT/Mine Tailings gravel, Damp	i, some Tan f Sand, little mf		Page 1 of 2

Cilent			Boring ID	Gornerstone Engineering Group, LLC
Project			Location	Cornerstone Engineering Group, LLC CORNERSTONE environmental
		USCS	AI	
Pord Ford	Motor Company		B-2016-1	
DEI	Notor Posposny	SOIL TYPE	SOIL / ROCK 한편SERIPTION	REMARK(\$2-018
	B-2016-1-(20-20.5)	0 0 0 0 SM 0 0 0 0 SM 0 0 0 0 SM	Gray SILT/Mine Tailings, some Tan f Sand, little mf gravel, Damp Brown f SAND, trace Gray Silt/Mine Tailings, little f Gravel, Slightly Moist	
25				
0				
490				
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485				
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480				
35				
475				
40_]				
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Pr	oje	ct				Loca	=		50h	rstone ironmental
Di Di	rilling	g C	ord Motor Company Ontractor ord Motor Company			t Date	B-2016-2 Ringwood, NJ	Evelation es Northing Easting	timated based on Of	40802-018
Ē Lα	ogge	d by	y Summit Drilling		Bore	hole Depth (ft bg		Surface E	lev. (ft) 841240.	000
	rill R rilling	g Me	Bill Shinn ethod John Giuliano			ehole Dia. (in)	12/14/16 24.00	DTW (ft. b Horizontal	556180. Datum 513.00	000
S	amp	le N	Fraste lethod Sonic	U:	SCS		3	Vertical D	10.50	
N	otes	ŀ	Sonic	Octobronia de Antonio						
оертн О	_		<u> </u>		<u> </u>					
<u>ё</u> о	EV. FT)	ĕ.g	SAMPI	SOIL	TYPE	SOIL / F	ROCK DESCRIPTION		REMA	RKS
- - -	97 <u>3</u>)	(mdd)	•		N/A	GF No Recovery	ROUND SURFACE			
_	-	ĺ								
5_					GP SP	Black cmf GRAVEL	d Black cm SAND, little cmf			
		0	B-2016-2-(4.5-5)			Gravel	,			
	 				N/A	No Recovery				
-	-	0			SP	Brown cm SAND, lit	tle cmf Gravel			
_	_		B-2016-2-(11-11.5)		SM	Light Brown mf SAN	D, some Silt, Damp			
1 √			B-2010-2-(11-11.5)		N/A	No Recovery				
500 										
_	_		B-2016-2-(16.5-17)		SM	Light Brown mf SAN	D, little Gray Silt/Mine Tailings			
95	-				SP	cmf SAND, little mf				
15_	-			<u>ala ala</u>	ML	Brown SILT, Satural	lea			
_										
		0								
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Client		Boring ID	Gernerstone Engineering Group, LLC
Project		Location	Cornerstone Engineering Group, LLC CORNERSTONE environmental
	USCS		******
Ford Motor Company Ford Motor Co	SOIL TYPE	B-2016-2 SOIL / ROCK DESCRIPTION Brown SILT, Saturated	REMARK5 2-018
B-2016-2-(21.5-22) 490 0	SM	Tan mf SAND, some Gray Silt/Mine Tailings, little mf Gravel, Damp	
30			
480			
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740			
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Client				Boring ID	Cornerstone Engineering Group, LLC
Project				Location	Cornerstone Engineering Group, LLC CORNERSTONE environmental
E Drilled by C Logged by Drill Rig Drilling Met Sample Me	Bill Shinn thod John Giuliano Fraste ethod Sonic Sonic	Us	Bore	Date B-2016-3 Dietion Date Ringwood, NJ hole Depth (ft bgs) 12/14/16 16.00 3	Evelation estimated based on OB-22 Northing Easting Surface Elev. (ft) DTW (ft. bgs) Horizontal Datum Vertical Datum Vertical Datum
DEPTH	LAB	SOIL	.TYPE	SOIL / ROCK DESCRIPTION GROUND SURFACE No Recovery	REMARKS
5 — 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	B-2016-3-(5.5-6		GM SP N/A	mf GRAVEL, some mf Sand Orange/Brown m SAND, little mf Black Gravel, Woody Debris No Recovery	
500	B-2016-3-(9.5-10)		SM	mf SAND, some Black Silt, Moist	
10 33			SP ML	Light Brown /Tan f SAND, little f Gravel, Slightly Moist SILT, sweet petroleum like odor noticed, Saturated	
495 0	B-2016-3-(14-14.5)	00000	SW GP	Medium Brown mf SAND, Saturated fm GRAVEL, some Light Gray Silt, Moist	
15					
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Client		Boring ID	
Project		Location	cornerstone
Drilling Contractor Company Drilled by9€DA Sampling Logged by Summit Drill Rig Bill Shinn	Con	t Date B-2016-4 rpletion Date Ringwood, NJ ehole Depth (ft bgs) 12/13/16	Evelation estimated based on OB-22 Northing Easting 140802-018
E Logged by Summit ☐ Drill Rig Bill Shinn	Bore	ehole Depth (ft bgs) 12/13/16 ehole Dia. (in) 12/13/16	Surface Elev. (ft) 841210.000 556120.000 DTW (ft. bgs) 545.00
Drilling Method John Giuliar Fraste	USCS	30.00	Horizontal Datum
Sample Method Sonic			Vertical Datum
Notes:			
DEPTH OPIN (PPIN) (PPIN) (PPIN) (PPIN) (PPIN) (PPIN) (PPIN)	SOIL TYPE	SOIL / ROCK DESCRIPTION	REMARKS
515	ML N/A	GROUND SURFACE SILT, some Grass and Roots, mf Gravel, Damp No Recovery	
5 —			
D 2045 4 (0 F 0)	GC	CLAY, some mf Gravel, Damp	
B-2016-4-(8.5-9)	PT	Woody Organic Debris, Damp	
0	GM	Gray SILT/Mine Tailings, little f Gravel, Damp	
B-2016-4-(11-11.5)	GP	mf GRAVEL	
	CL ML	Dark Gray Silt with brown streaks/Mine Tailings, Damp	
	GM	Brown and Dark Gray SILT/Mine Tailings Brown SILT, some Clay, little f gravel	
500 - 0 B-2016-4-(15-15.5)	SM	mf SAND, some Silt, little f Gravel	
150 January 11_ 2017 12:26	ML	Brown and Gray SILT/Mine Tailings Brown SILT, some f Gravel	Page 1 of 2

Cilent				Boring ID	
Project				Location	cornerstone
	1	US	cs		
DEPTH	ord Motor Company OCDA Sare	SOIL	TYPE	B-2016-4 SOIL / ROCK DESCRIPTION	REMARKS 2-018
DEF (ELEV. FT)	Ø				
	B-2016-4-(20-20.5)		GM	Brown SILT, some f Gravel	
			SM	Brown SILT, Gray Clay, mf Sand, Damp	
25					
	B-2016-4-(23.5-24)		SM	Brown SILT, some mf Sand, Wet	
498			ML	Dark Gray SILT/Mine Tailings, Damp	
30					
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	7.40.00				
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Pr	oje	ct				Locati	=		cornerst	one
								Evelation esti	mated based on OB-22	
<u>≅</u> Dr	illed	I by	ord Motor Company DNTractor ord Motor Company		Com	Date pletion Date	B-2016-5 Ringwood, NJ	Northing Easting	140802-	018_
	ill R	ed by lig	y Summit Drilling Bill Shinn ethod John Giuliano		Bore Bore	hole Depth (ft bgs) hole Dia. (in)	12/14/16	Surface El	556180.000	
			Fraste Sonic	U	scs		18.00 3	Horizontal Vertical Da	Datum 512.00	
	otes	i.	Sonic <u>H</u>	ANNO MANAGARAN ANNO M						
DEP™	(ELĘV. FT)	Old (mdd)	A P	SOIL	TYPE	SOIL / RO	CK DESCRIPTION		REMARKS	
_	- -		B-2016-5-(0.5-1)		SP N/A	GROI Brown and Tan mf SAN Gravel, trace Silt, Mois No Recovery	JND SURFACE ID, little roots, little cmf			
_	. <u>5</u> _	10								
5_	-	-								
	505 _	-								
_	_	0			GP	Black cmf GRAVEL				
10	•		B-2016-5-(11-11.5)		GM SP	Tan, Orange, Brown m trace Silt, Slightly Mois cm SAND, some cmf G	f SAND, some mf Gravel,			
					GM		me f Sand, Black mf Gravel			
 195		0	B-2016-5-(15-15.5)	-						
15_ 	 ry 1 <u>1</u>	0 201	7 12:26		sc	Gray SILT/Mine Tailing	s, White and Tan Sand			Page 1 of 1
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Client		Boring ID	Gernerstone Engineering Group, LLC
Project		Location	Cornerstone Engineering Group, LLC CORNERSTONE environmental
			Evelation estimated based on OB-22
Drilling Contractor Drilled by Ford Motor Company Drilled by Ford Motor Company	Star	t Date B-2016-6 pletion Date Ringwood, NJ	Northing 140802-018
E Logged by Summit Drilling ☐ Drill Rig Bill Shinn	Bor	ehole Depth (ft bgs) 12/15/16 ehole Dia. (in) 12/15/16	Surface Elev. (ft) 841210.000 556240.000 DTW (ft. bgs) 505.00
Drilling Method John Giuliano Fraste Sample Method Sonic	uscs	5.00 3	Horizontal Datum 505.00 Verţical Datum
Notes: Sonic			
DEPTH CELEV. FT) PID PI	SOIL TYPE	SOIL / ROCK DESCRIPTION	REMARKS
\$05	5M	GROUND SURFACE cmf SAND, little roots, trace of Silt, Saturated	
0 B-2016-6-(1.5-2)	SP	Tan cm SAND, little f Gravel, Damp purple/blue coloration noted, uncharacteristic of paint sludge	
5			
January 11 2017 12:26			Page 1 of 1

Client				Borin	g ID	Gornerst	one Engineering Group, LLC		
Project				Location			Cornerstone Engineering Group, LLC CORNERSTONE environmental		
Drilling Con Drilled by or Logged by Drill Rig Drilling Met	Bill Shinn thod John Giuliano		Com Bore Bore	t Date npletion Date ehole Depth (ft bgs) ehole Dia. (in)	B-2016-7 Ringwood, NJ) 12/15/16 12/15/16 12.00	Northing Easting Surface Elev. (ft) DTW (ft. bgs) Horizontal Datum	140802-018 841180.000 556120.000		
Sample Me	Sonic	U	SCS		3	Vertical Datum	5.00		
0	SAMPLI	SOIL	TYPE SM N/A	SOIL / RO	UND SURFACE le cmf Gravel, Damp		REMARKS		
500	B-2016-7-(9-9.5)		SW	Brown of SAND, Satu Brown f SAND, seme- discoloration noticed in waste	rated Silt, mf Gravel, Damp, soil around 9, not paint				
D 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B-2016-7-(11.5-12)		SP	Brown mf SAND, Satu Tan/Brown mf SAND,					
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Client		Boring ID	Gernerstone Engineering Group, LLC
Project		Location	Cornerstone Engineering Group, LLC CORNERSTONE environmental
Drilling Contractor Company Drilling Contractor Drilled by Ford Motor Company	Start	Date B-2016-8 Dletion Date Ringweed, NJ	Evelation estimated based on OB-22 Northing Easting 140802-018
Logged by Summit Drilling	Bore	hole Depth (ft bgs) 12/15/16	Surface Elev. (ft) 841180.000
Drilling Method John Giuliano		hole Dia. (in) 12/15/16 12.00	DTW (ft. bgs) Horizontal Datum 556180.000 506.00
Fraste Sample Method Sonic	USCS	3	Vertical Datum 3.00
Notes: Sonic			
DEPTH (ELEV. FT) Pin Pi	SOIL TYPE	SOIL / ROCK DESCRIPTION GROUND SURFACE Brown mf SAND, Damp	REMARKS
→ 305	SP CP	f GRAVEL	
5— - ₀ B-2016-8-(4.5-5)	GM	Dark SILT/Mine Tailings, some f Gravel, Wet Dark SILT/Mine Tailings, trace Brown mf Sand	
		SILT, some Brown mf Sand, little mf Gravel	
B-2016-8-(9-9.5) 10 B-2016-9-(11-11.5)		f SAND, little Silt, little f Gravel, Damp	
490 — -			
15			
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Client		Boring ID	Cornerstone Engineering Group, LLC
Project		Location	Cornerstone Engineering Group, LLC CORNERSTONE environmental
Drilling Contractor Drilled by Ford Motor Company Drilled by Ford Motor Company Logged by Summit Drilling Drill Rig Bill Shinn Drilling Method John Giuliano Fraste Sample Method Sonic Notes: Sonic	Com Bore	Date B-2016-9 Pletion Date Phole Depth (ft bgs) 12/15/16 Phole Dia. (in) 12/15/16 8.00 3	Evelation estimated based on OB-22 Northing Easting Surface Elev. (ft) DTW (ft. bgs) Horizontal Datum Vertical Datum Vertical Datum
H G G G G G G G G G G G G G	SOIL TYPE SP SW SP SP SP SP SP SP SP	GROUND SURFACE Brown mf SAND, cmf Gravel Brown/Orange cmf SAND, little White Sand mf GRAVEL Brown m SAND, little mf Gravel, Damp mf GRAVEL Dense Brown, Orange, Tan m SAND, little f Gravel, trace Silt	REMARKS Page 1 of 1

Cilent			Boring ID	Gornerstone Engineering Group, LLC
Project			Location	cornerstone
				Evelation estimated based on OB-22
Drilling (Drilled by Logged Drill Rig	Ford Motor Company Contractor Ford Motor Company by Summit Drilling Bill Shinn	Borel	Date Pletion Date hole Depth (ft bgs) 12/14/16 hole Dia. (in) 12/14/16	Northing Easting 140802-018 Surface Elev. (ft) 841150.000 556120.000
Drilling I Sample Notes:	Method John Giuliano Fraste	uscs	23.00	Horizontal Datum Vertical Datum 510.00 6.00
DEPTH CELEV. FT)	A P	SOIL TYPE	SOIL / ROCK DESCRIPTION	REMARKS
510		SM	GROUND SURFACE m SAND, some Silt, little roots, Damp Dark Brown f SAND, some Silt	
	B-2016-10-(4-4.5)	SP	Light Brown/Orange mf SAND, some Gray Silt, little mf Gravel	
5		SM	Brown f SAND, Silt, Wet	
	B-2016-10-(9-9.5)	GM	SILT, little mf Gravel, trace of Sand, Slightly Damp	
500		ML	Gray SILT/Mine Tailings, Moist	
10	B-2016-10-(11.5-12)	SM	mf SAND, Gray Silt	
		GM	SILT, little mf Gravel, trace f Sand	
495		о о о о о о о о о о о о о о о о о о о	Brown SILT, little mf Gravel	
15				
9 (January 11 20		ML	Gray SILT/Mine Tailings, trace f sand, Damp	Page 1 of 2

Project USCS USCS Protect Description	<u> </u>	τ	BORING ID Gernerstone Engineering Group, L					
### PROPERTY OF THE PROPERTY O	Proje	ct			Cornerstone Engineering Group, LLC CORNERSTONE environmental			
B-2016-19-(20.5-21) M.L. Gray SILT Time Tailings, trace fearld, Damp GP mt GRAVEL M.L. Gray SILT Time Tailings 30			USCS					
B-2016-10-(20.5-21) M. Gray SILTAMine Tailings. trace f eard, Damp GP mf GRAVEL M. Cray SILTAMine Tailings 30								
B-2016-10-(20.5-21) M. Gray Sil. Tabling Tailings, trace f sand, Damp GP mt GRAVE. M. Cray Sil. Tabling Tailings 30								
B-2016-19-(20.5-21) M.L. Gray Sil. Takine Tailings, trace 6 eard, Damp GP mt GRAVEL ML Gray Sil. Takine Tailings 30	Ŧ	Ford Motor Company						
B-2016-10-(20.5-21) M. Gray Sil. Tabling Tailings, trace f sand, Damp GP mt GRAVE. M. Cray Sil. Tabling Tailings 30	DEP 	Ford Motor Dany		SOIL / ROCK DESCRIPTION	REMARKS2-018			
30	ELĘV.							
25 ML Gray SITMine Tallinga Gray SITMine Tallinga		0	HIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII					
25			GP	mf GRAVEL				
30	25		ML	Gray SILT/Mine Tailings				
30	_							
30								
4888		485						
4888		1						
4888	4 -							
480 								
480 								
35		<u> </u> 						
35								
35								
35								
35		-						
35								
40	475							
40_	35	1						
40_		-						
40_								
40								
	470							
	40							
	40_ -	1						
	<u> </u>							
January 11 2017 12:26 Page 2 of 2								
	January 11	2017 12:26			Page 2 of 2			
	- -							

- Ulle	nτ				B0	ring ID		Cornerstone	Engineering Group	, LLC
Proj	ect					cation		corr	nerstor environmenta	ie
Drille Logo Drill Drilli	ed by ged by Rig ing Me	Bill Shinn ethod John Giuliano Fraste	Us	Com Bore	t Date ipletion Date chole Depth (ft chole Dia. (in)	B-2016-11 Ringwood, NJ bgs) 12/15/16 12/15/16 12.00 3	Northing Easting Surface I DTW (ft. Horizonta	Elev. (ft) 84 55 bgs) 50 al Datum	140802-018 14150.000 66180.000 07.00	
Note		lethod Sonic Sonic					Vertical [Datum		
DEPTH	(FL/FV, FV) PID (ppm)	SAMPI	SOIL	. TYPE	SOIL No Recovery	/ ROCK DESCRIPTION GROUND SURFACE		RI	EMARKS	
	5 <u>0</u> 5			SP SP		SAND, little pebbles, roots, Wet /hite mf SAND, little Black mf				
	- 0 ? -	B-2016-11-(5-5.5)		N/A SP	No Recovery	ND some Silt little f Gravel Faint				
10 495	0 0	B-2016-11-(11-11.5)			Purple coloration	ND, some Silt, little f Grayel. Faint noted around 11, not paint waste				
 390	- - -									
January	11 201	7 12:26							Pagi	e 1 of 1
	-									

Drilling Contractor Start Date Drilled by Sammat Drilling Drilling Method John Guidene Drilling Method John Guidene Sammat Drilling Borehole Data (III) 12/15/16 Drilling Method John Guidene Sammat Drilling Borehole Data (III) 12/15/16 Drilling Method John Guidene Drilling Method John Guidene Drilling Method Sonic Sammat Drilling Borehole Data (III) 12/15/16 Drilling Method John Guidene Drilling Method John Guidene Drilling Method Sonic Sammat Drilling Borehole Data (III) 12/15/16 Drilling Method John Guidene Drilling Method John Gui	
Drilling Contract Company Drilling Contract Company Start Date B-2016-12 Ringwood, NJ Easting 148802-91 Easting 148802-91 Easting 148802-91 Easting 148802-91 Easting Surface Elev. (ft) Easting 148802-91 Easting Surface Elev. (ft) Easting Easting Surface Elev. (ft)	8
Completion Date Completion	8
Drilling Method John Glullano Fraste USCS 6.00 Horizontal Datum 505.00 Samte Method Sonic	
Samile Method Sonic Notes: Sonic So	
SOIL TYPE SOIL / ROCK DESCRIPTION REMARKS REMARKS REMARKS SOIL TYPE SOIL / ROCK DESCRIPTION REMARKS REMARKS Proving GROUND SURFACE Solution of the second of the	
5- 500 0 B-2016-6-(5.5-6) SM Brown m SAND, little Brown Silt SP Orange/Brown with bands of White mf SAND, little mf Gravel	
N/A No Recovery	
500 0 B-2016-6-(4-4.5) SM Brown m SAND, little Brown Silt SP Orange/Brown with bands of White mf SAND, little mf Gravel	
5— 500— 0 B-2016-6-(4-4-5) SP Orange/Brown with bands of White mf SAND, little mf Gravel	
 - 	
495 -	
495 -	
10	
490—	
January 10, 2017 09:36 15— —	Page 1 of 1

Cilent			Boring ID	Cornersto	one Engineering Group, LLC	
Project			Location	Cornerstone Engineering Group, LLC CORNERSTONE environmental		
				Evelation estimated ba	sed on OB-22	
Drilling Contractor Drilled by Ford Motor (Logged by Drill Rig	Company		oletion Date Ringwood, NJ	Northing ————————————————————————————————————	140802-018	
Drill Rig Drilling Method Sample Method	Summit Drilling Bill Shinn John Giuliano B-2016Fraste Sonic	Borel SCS	hole Depth (ft bgs) 12/14/16 hole Dia. (in) 12/14/16 18.00 3	Surface Elev. (ft) DTW (ft. bgs) Horizontal Datum Vertical Datum	841120.000 556120.000 511.00 6.00	
Notes: H (a) (a) (a) (a) (b) (b) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	Sonic U				PEMARKO	
DEP (ELEV. FT) PID (PPID)	SOI	TYPE	SOIL / ROCK DESCRIPTION		REMARKS	
310		N/A	GROUND SURFACE No Recovery			
5 0	16-13-(5-5.5)	SM SP	Brown mf SAND, some Silt, f Gravel, Damp f SAND, some Silt, little f Gravel, Wet			
B-2016	s-13-(10-10.5)	GP SM	f GRAVEL Brown and Gray f SAND, some Silt, Wet			
10 0 0		GP MH	f Gravel SILT/Mine-Tailings, Wet			
		SM	f SAND, some Silt/Mine Tailings, little f Gravel			
496 — -	3-13-(15-15.5)	GP	fm GRAVEL			
January 11 2017 12:26					Page 1 of 1	

Cilent				Boring ID		Cornersto	ne Engineering Group, LLC
Project				Location		CO	rnerstone environmental
Drilled by Logged by Drill Rig Drilling Me Sample N	Bill Shinn ethod John Giuliano Fraste	US	Com Bore	pletion Date	Ringwood, NJ 5/16 5/16 00	Northing Easting Surface Elev. (ft) DTW (ft. bgs) Horizontal Datum Vertical Datum	140802-018 841120.000 556180.000 508.00
DEPTH	SAMPL	SOIL	.TYPE	SOIL / ROCK D			REMARKS
5.00 0 5.00 0	B-2016-14-(4-4.5)		SP SW SM	Light and Medium Brown mf S Wet Brown, Tan and White f SAND Brown mf SAND, little Black f (Silt/Mine Tailings, Damp Brown f SAND, little Black f Gr), Damp Gravel, trace of		
10 0 495	B-2016-14-(10-10.5)						
January 11, 201	7 12:26						Page 1 of 1

ATTACHMENT B - LABORATORY REPORTS



ANALYTICAL REPORT

Lab Number: L1641090

Client: Cornerstone/Cadena Co. joint account

1099 Highland Drive, Suite E

Ann Arbor, MI 48108

ATTN: Jim Tomalia
Phone: (517) 819-0356

Project Name: FORD-RINGWOOD

Project Number: 140802-018

Report Date: 01/09/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), ME (MA00030), PA (68-02089), VA (460194), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), USFWS (Permit #LE2069641), USDA (Permit #P330-11-00109), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806 508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: FORD-RINGWOOD

Project Number: 140802-018

 Lab Number:
 L1641090

 Report Date:
 01/09/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1641090-01	B-2016-1-5-5.5	SOIL	RINGWOOD, NJ	12/13/16 14:00	12/16/16
L1641090-02	B-2016-1-9-9.5	SOIL	RINGWOOD, NJ	12/13/16 14:15	12/16/16
L1641090-03	B-2016-1-13.5-14	SOIL	RINGWOOD, NJ	12/13/16 14:30	12/16/16
L1641090-04	B-2016-1-20-20.5	SOIL	RINGWOOD, NJ	12/14/16 09:45	12/16/16
L1641090-05	B-2016-2-4.5-5	SOIL	RINGWOOD, NJ	12/13/16 15:20	12/16/16
L1641090-06	B-2016-2-11-11.5	SOIL	RINGWOOD, NJ	12/13/16 15:35	12/16/16
L1641090-07	B-2016-2-16.5-17	SOIL	RINGWOOD, NJ	12/13/16 16:15	12/16/16
L1641090-08	B-2016-2-21.5-22	SOIL	RINGWOOD, NJ	12/14/16 08:00	12/16/16
L1641090-09	B-2016-3-5.5-6	SOIL	RINGWOOD, NJ	12/14/16 11:05	12/16/16
L1641090-10	B-2016-3-9.5-10	SOIL	RINGWOOD, NJ	12/14/16 11:15	12/16/16
L1641090-11	B-2016-3-14-14.5	SOIL	RINGWOOD, NJ	12/14/16 11:55	12/16/16
L1641090-12	B-2016-4-8.5-9	SOIL	RINGWOOD, NJ	12/13/16 11:20	12/16/16
L1641090-13	B-2016-4-11.0-11.5	SOIL	RINGWOOD, NJ	12/13/16 11:30	12/16/16
L1641090-14	B-2016-4-15-15.5	SOIL	RINGWOOD, NJ	12/13/16 12:00	12/16/16
L1641090-15	B-2016-4-20-20.5	SOIL	RINGWOOD, NJ	12/13/16 12:20	12/16/16
L1641090-16	B-2016-4-23.5-24	SOIL	RINGWOOD, NJ	12/13/16 12:30	12/16/16
L1641090-17	B-2016-55-1	SOIL	RINGWOOD, NJ	12/14/16 10:15	12/16/16
L1641090-18	B-2016-5-11-11.5	SOIL	RINGWOOD, NJ	12/14/16 10:25	12/16/16
L1641090-19	B-2016-5-15-15.5	SOIL	RINGWOOD, NJ	12/14/16 10:45	12/16/16
L1641090-20	B-2016-6-4.5-5	SOIL	RINGWOOD, NJ	12/15/16 10:10	12/16/16
L1641090-21	B-2016-6-1.5-2	SOIL	RINGWOOD, NJ	12/15/16 10:00	12/16/16
L1641090-22	B-2016-7-9-9.5	SOIL	RINGWOOD, NJ	12/15/16 08:40	12/16/16
L1641090-23	B-2016-7-11.5-12	SOIL	RINGWOOD, NJ	12/15/16 08:55	12/16/16
P989 1096124	B-2016-8-11-11.5	SOIL	RINGWOOD, NJ	12/15/16 09:45	12/16/16

Alpha			Sample	Serial_N Collection	o:01091713:38
Sample ID	Client ID	Matrix	Location	Date/Time	Receive Date
L1641090-25	B-2016-8-9-9.5	SOIL	RINGWOOD, NJ	12/15/16 09:35	12/16/16
L1641090-26	B-2016-8-4.5-5	SOIL	RINGWOOD, NJ	12/15/16 09:20	12/16/16
L1641090-27	B-2016-9-6-6.5	SOIL	RINGWOOD, NJ	12/15/16 10:55	12/16/16
L1641090-28	B-2016-9-2-2.5	SOIL	RINGWOOD, NJ	12/15/16 10:40	12/16/16
L1641090-29	B-2016-10-4-4.5	SOIL	RINGWOOD, NJ	12/14/16 14:40	12/16/16
L1641090-30	B-2016-10-9-9.5	SOIL	RINGWOOD, NJ	12/14/16 14:45	12/16/16
L1641090-31	B-2016-10-11.5-12	SOIL	RINGWOOD, NJ	12/14/16 14:50	12/16/16
L1641090-32	B-2016-10-20-21.5	SOIL	RINGWOOD, NJ	12/14/16 15:40	12/16/16
L1641090-33	B-2016-11-5-5.5	SOIL	RINGWOOD, NJ	12/15/16 13:15	12/16/16
L1641090-34	B-2016-11-11-11.5	SOIL	RINGWOOD, NJ	12/15/16 13:30	12/16/16
L1641090-35	B-2016-12-5.5-6	SOIL	RINGWOOD, NJ	12/15/16 11:40	12/16/16
L1641090-36	B-2016-12-4-4.5	SOIL	RINGWOOD, NJ	12/15/16 11:30	12/16/16
L1641090-37	B-2016-13-5-5.5	SOIL	RINGWOOD, NJ	12/14/16 13:15	12/16/16
L1641090-38	B-2016-13-10-10.5	SOIL	RINGWOOD, NJ	12/14/16 14:00	12/16/16
L1641090-39	B-2016-13-15-15.5	SOIL	RINGWOOD, NJ	12/14/16 14:20	12/16/16
L1641090-40	B-2016-14-4-4.5	SOIL	RINGWOOD, NJ	12/15/16 12:45	12/16/16
L1641090-41	B-2016-14-10-10.5	SOIL	RINGWOOD, NJ	12/15/16 13:00	12/16/16
L1641090-42	DUP-1	SOIL	RINGWOOD, NJ	12/14/16 12:00	12/16/16
L1641090-43	DUP-2	SOIL	RINGWOOD, NJ	12/15/16 12:00	12/16/16

Project Name:FORD-RINGWOODLab Number:L1641090Project Number:140802-018Report Date:01/09/17

NJ DEP Data of Known Quality Protocols Conformance/Non-Conformance Summary Questionnaire

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the NJDEP Data of Known Quality performance standards?	YES
1a	Were the method specified handling, preservation, and holding time requirements met?	YES
1b	EPH Method: Was the EPH Method conducted without significant modifications (see Section 11.3 of respective DKQ methods)?	N/A
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	YES
3	Were all samples received at an appropriate temperature (4 ± 2° C)?	YES
4	Were all QA/QC performance criteria specified in the NJDEP DKQP standards achieved?	NO
5a	Were reporting limits specified or referenced on the chain-of-custody or communicated to the laboratory prior to sample receipt?	NO
5b	Were these reporting limits met?	N/A
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the DKQP documents and/or site-specific QAPP?	NO
7	Are project-specific matrix spikes and/or laboratory duplicates included in this data set?	NO

Note: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1a or #1b is "No", the data package does not meet the requirements for "Data of Known Quality".



Project Name:FORD-RINGWOODLab Number:L1641090Project Number:140802-018Report Date:01/09/17

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.



Serial_No:01091713:38

Project Name:FORD-RINGWOODLab Number:L1641090Project Number:140802-018Report Date:01/09/17

Case Narrative (continued)

Report Submission

This report replaces the report issued January, 3 2017. Samples L1641090-38 and -39 client ID's have been corrected.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

DKQP Related Narratives

Report Submission

In reference to question 5a:

Reporting limits were not specified.

Semivolatile Organics by SIM

In reference to question 6:

At the client's request, all submitted samples were not analyzed for the full DKQP list of constituents identified in the method specific analyte list presented in the DKQP documents.

In reference to question 4:

Samples L1641090-04, -06, -07, -11, -13, -14, -15, -16, -17, -18, -19, -21, -22, -24, -29, -30, -31, -

32, and -37: One or more surrogates failed to meet the DKQP recovery limits. Please refer to the sample results and/or QC section of the report for specific details.

WG963086-1/-2/-3, WG963089-1/-2, WG963107-1/-2 and -3: One or more surrogates failed to meet the DKQP recovery limits. Please refer to the sample results and/or QC section of the report for specific details.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Juan & Med Susan O' Neil

Title: Technical Director/Representative Date: 01/09/17



ORGANICS



SEMIVOLATILES



Serial_No:01091713:38

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-01 Date Collected: 12/13/16 14:00

Client ID: B-2016-1-5-5.5 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil

Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00 Analytical Date: 12/30/16 03:26

Analyst: SF Percent Solids: 86%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfi	eld Lab					
1,4-Dioxane		ND		mg/kg	0.00849	0.00425	1
	Surrogate	% Recover	y Qua	ılifier	Acceptance Criteria		
	1,4-Dioxane-d8	104			15-110		



Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

87%

Date Collected: 12/13/16 14:15

Lab ID: L1641090-02 Client ID: B-2016-1-9-9.5 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method: EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00

Analytical Date: 12/30/16 04:12 Analyst: SF

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00857 0.00428 mg/kg 1 Acceptance Surrogate Qualifier % Recovery Criteria 1,4-Dioxane-d8 100 15-110



Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-03 Date Collected: 12/13/16 14:30 Client ID: B-2016-1-13.5-14 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00 Analytical Date: 12/30/16 04:59

Analyst: SF Percent Solids: 79%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxan	e by 8270D-SIM - Mansfield Lab						
1,4-Dioxane		ND		mg/kg	0.00873	0.00436	1
	Surrogate	% Recovery	, Qu	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	96			15-110		

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-04
Client ID: B-2016-1-20-20.5

RINGWOOD, NJ

Matrix: Soil

Sample Location:

Analytical Method: 1,8270D-SIM Analytical Date: 12/30/16 05:45

Analyst: SF Percent Solids: 89% Date Collected: 12/14/16 09:45
Date Received: 12/16/16
Field Prep: Not Specified
Extraction Method:EPA 3570
Extraction Date: 12/20/16 20:00

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxan	ne by 8270D-SIM - Mansfield Lab		tha charange basan basan ng ngga ngga ngga				
1,4-Dioxane		ND		mg/kg	0.00815	0.00408	1
	Surrogate	% Recov	ery Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	11	15	Q	15-110		

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

95%

Date Collected: 12/13/16 15:20

Lab ID: L1641090-05 Client ID: B-2016-2-4.5-5 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method: EPA 3570 Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00

Analytical Date: 12/30/16 06:31 Analyst: SF

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00762 0.00381 mg/kg 1 Acceptance Surrogate % Recovery Qualifier Criteria 1,4-Dioxane-d8 107 15-110

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

86%

TE RESSERS

 Lab ID:
 L1641090-06
 Date Collected:
 12/13/16 15:35

 Client ID:
 B-2016-2-11-11.5
 Date Received:
 12/16/16

 Sample Location:
 RINGWOOD, NJ
 Field Prep:
 Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00

Analytical Date: 12/30/16 07:18
Analyst: SF

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab)					
1,4-Dioxane		ND		mg/kg	0.00789	0.00395	1
	Surrogate	% Recov	ery Qu	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	11	3	Q	15-110		



Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-07 Date Collected: 12/13/16 16:15 Client ID: B-2016-2-16.5-17 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00

Analytical Date: 12/30/16 08:04 Analyst: SF

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab						
1,4-Dioxane		ND		mg/kg	0.00778	0.00389	1
	Surrogate	% Recov	ery Qu	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	11	12	Q	15-110		



Percent Solids:

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-08 Client ID: B-2016-2-21.5-22

Matrix: Soil

Sample Location:

Analytical Method: 1,8270D-SIM Analytical Date: 12/30/16 08:50

RINGWOOD, NJ

Analyst: SF Percent Solids: 76% Date Collected: 12/14/16 08:00 Date Received: 12/16/16 Field Prep: Not Specified Extraction Method:EPA 3570 Extraction Date: 12/20/16 20:00

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxan	ne by 8270D-SIM - Mansfield Lab					100	
1,4-Dioxane		ND		mg/kg	0.00981	0.00490	1
	Surrogate	% Recove	ery Qu	ıalifier	Acceptance Criteria		
	1,4-Dioxane-d8	103	3		15-110		



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-09
 Date Collected:
 12/14/16 11:05

 Client ID:
 B-2016-3-5.5-6
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00

Analytical Date: 12/30/16 09:37

Analyst: SF

Percent Solids: 85%

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00865 0.00432 mg/kg 1 Acceptance Surrogate % Recovery Qualifier Criteria 1,4-Dioxane-d8 100 15-110

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

88%

Lab ID: L1641090-10 Date Collected: 12/14/16 11:15

Client ID: B-2016-3-9.5-10 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil Extraction Method: EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00

Analytical Date: 12/30/16 10:23 Analyst: SF

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00881 0.00441 mg/kg 1 Acceptance Surrogate % Recovery Qualifier Criteria 1,4-Dioxane-d8 110 15-110



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-11 Date Collected: Client ID: B-2016-3-14-14.5 Date Received:

Sample Location: RINGWOOD, NJ Matrix: Soil

Analytical Method: 1,8270D-SIM Analytical Date: 12/30/16 11:09

Analyst: SF Percent Solids: 78% Date Collected: 12/14/16 11:55
Date Received: 12/16/16
Field Prep: Not Specified
Extraction Method:EPA 3570
Extraction Date: 12/20/16 20:00

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxan	ne by 8270D-SIM - Mansfield Lab		Mary American State (State Control of State Control of St				
1,4-Dioxane		ND		mg/kg	0.00996	0.00498	1
	Surrogate	% Recov	ery Qu	alifier	Acceptance Criteria		
	1.4-Dioxane-d8	12	24	Q	15-110		

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-12 Date Collected: 12/13/16 11:20

Client ID:B-2016-4-8.5-9Date Received:12/16/16Sample Location:RINGWOOD, NJField Prep:Not SpecifiedMatrix:SoilExtraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00
Analytical Date: 12/30/16 11:55

Analyst: SF
Percent Solids: 83%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab					Section 1997	
1,4-Dioxane		ND		mg/kg	0.00819	0.00410	1
	Surrogate	% Recov	ery Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	10)5		15-110		



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-13 Date Collected: 12/13/16 11:30

Client ID: B-2016-4-11.0-11.5 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00

Analytical Date: 12/30/16 14:09
Analyst: SF

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab						
1,4-Dioxane		ND		mg/kg	0.00863	0.00431	1
	Surrogate	% Recov	ery Qu	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	12	26	Q	15-110		

Percent Solids:

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-14 Date Collected: 12/13/16 12:00

Client ID: B-2016-4-15-15.5 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil Extraction Method: EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00

Analytical Date: 12/30/16 14:55 Analyst: SF

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00881 0.00440 mg/kg 1





Percent Solids:

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-15 Date Collected: 12/13/16 12:20

Client ID: B-2016-4-20-20.5 Date Received: 12/16/16
Sample Location: RINGWOOD, NJ Field Prep: Not Specified
Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 20:00

Analytical Date: 12/30/16 15:42
Analyst: SF

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab						
1,4-Dioxane		ND		mg/kg	0.00819	0.00409	1
	Surrogate	% Recove	ery Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	137	7	Q	15-110		



Percent Solids:

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-16
Client ID: B-2016-4-23.5-24
Sample Location: RINGWOOD, NJ

Matrix: Soil

Analytical Method: 1,8270D-SIM Analytical Date: 12/30/16 16:28

Analyst: SF Percent Solids: 84% Date Collected: 12/13/16 12:30
Date Received: 12/16/16
Field Prep: Not Specified
Extraction Method:EPA 3570
Extraction Date: 12/20/16 20:00

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab		7/48 2015/11/2015/11/2015 00000000000000000000000000000000000				
1,4-Dioxane		ND		mg/kg	0.00817	0.00409	1
	Surrogate	% Recove	ery Qual	ifier	Acceptance Criteria		
	1,4-Dioxane-d8	12	5	Q	15-110		

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

85%

 Lab ID:
 L1641090-17
 Date Collected:
 12/14/16 10:15

 Client ID:
 B-2016-5-.5-1
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 04:13
Analyst: WR

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab						
1,4-Dioxane		ND		mg/kg	0.00844	0.00422	1
	Surrogate	% Recovery	y Qu	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	137		Q	15-110		

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-18 Date Collected: 12/14/16 10:25 Client ID: B-2016-5-11-11.5 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil

Extraction Method:EPA 3570 Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 04:59 Analyst: WR

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab		145 (176) (176) (176) 1000 (176) (176)				
1,4-Dioxane		ND		mg/kg	0.00809	0.00405	1
	Surrogate	% Recover	ry Qı	ıalifier	Acceptance Criteria		
	1,4-Dioxane-d8	113	1	Q	15-110		



Percent Solids:

Project Name: Lab Number: L1641090 FORD-RINGWOOD

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-19 Date Collected: 12/14/16 10:45 Client ID: B-2016-5-15-15.5 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00 Analytical Date: 12/24/16 05:45

Analyst: WR Percent Solids: 89%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab						
1,4-Dioxane		ND		mg/kg	0.00831	0.00415	1
	Surrogate	% Recovery	, Qu	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	113		Q	15-110		



Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

90%

SAMPLE RESULTS

Lab ID: L1641090-20 Date Collected: 12/15/16 10:10

Client ID: B-2016-6-4.5-5 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 06:31 Analyst: WR

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxan	e by 8270D-SIM - Mansfield Lab					and the second	
1,4-Dioxane		ND		mg/kg	0.00808	0.00404	1
	Surrogate	% Recover	y Qı	ıalifier	Acceptance Criteria		
	1,4-Dioxane-d8	109			15-110		

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

WR

86%

1,4-Dioxane-d8

15-110

Lab ID: L1641090-21 Date Collected: 12/15/16 10:00 Client ID: B-2016-6-1.5-2 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method: EPA 3570 Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 07:17

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00814 0.00407 mg/kg 1 Acceptance Surrogate % Recovery Qualifier Criteria

Q

113



Analyst:

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-22 Date Collected: 12/15/16 08:40 Client ID: B-2016-7-9-9.5 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method: EPA 3570 Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 08:03 Analyst: WR

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00785 0.00392 mg/kg 1 Acceptance Surrogate % Recovery Qualifier Criteria 1,4-Dioxane-d8 112 Q 15-110



Percent Solids:

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Date Collected: 12/15/16 08:55

Lab ID: L1641090-23 Client ID: B-2016-7-11.5-12 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified Soil

Matrix: Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 08:49 Analyst: WR

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab			and the same	Services		
1,4-Dioxane		ND		mg/kg	0.00957	0.00478	1
	Surrogate	% Recov	ery Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	10)8		15-110		

Percent Solids:

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-24 Date Collected: 12/15/16 09:45

Client ID: B-2016-8-11-11.5 Date Received: 12/16/16
Sample Location: RINGWOOD, NJ Field Prep: Not Specified
Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 09:35
Analyst: WR

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8	270D-SIM - Mansfield Lab						
1,4-Dioxane		ND		mg/kg	0.00883	0.00441	1
Surro	ogate	% Recove	ery Qu	alifier	Acceptance Criteria		
1,4-D	ioxane-d8	11	8	Q	15-110		

Percent Solids:

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-25 Date Collected: 12/15/16 09:35 Client ID:

B-2016-8-9-9.5 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method: EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 10:21 Analyst: WR

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00801 0.00400 mg/kg 1 Acceptance Surrogate % Recovery Qualifier Criteria 1,4-Dioxane-d8 104 15-110



Percent Solids:

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-26 Date Collected: 12/15/16 09:20 Client ID: B-2016-8-4.5-5 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 12:34 Analyst: WR

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab					n Elegationne	
1,4-Dioxane		ND		mg/kg	0.00832	0.00416	1
	Surrogate	% Recov	ery Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	10)5		15-110		

Percent Solids:

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-27 Date Collected: 12/15/16 10:55

Client ID: B-2016-9-6-6.5 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00 Analytical Date: 12/24/16 13:21

Analyst: WR Percent Solids: 92%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	e by 8270D-SIM - Mansfield Lab		Plant of State of Control of Cont				
1,4-Dioxane		ND		mg/kg	0.00800	0.00400	1
	Surrogate	% Recove	ry Qu	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	102	l		15-110		

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-28 Date Collected: 12/15/16 10:40

Client ID: B-2016-9-2-2.5 Date Received: 12/16/16
Sample Location: RINGWOOD, NJ Field Prep: Not Specified
Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 14:07
Analyst: WR

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfie	eld Lab			Section 1985	60 E 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	
1,4-Dioxane	ND		mg/kg	0.00775	0.00388	1
Surrogate	% Recov	very Qua	alifier	Acceptance Criteria		
1,4-Dioxane-d8	10	07		15-110		

Percent Solids:

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-29 Date Collected: 12/14/16 14:40

Client ID: B-2016-10-4-4.5 Date Received: 12/16/16
Sample Location: RINGWOOD, NJ Field Prep: Not Specified
Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 14:53
Analyst: WR

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00793 0.00397 mg/kg 1 Acceptance Surrogate % Recovery Qualifier Criteria 1,4-Dioxane-d8 111 Q 15-110



Percent Solids:

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-30 Date Collected: 12/14/16 14:45

Client ID: B-2016-10-9-9.5 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 15:40 Analyst: WR Percent Solids: 91%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab						
1,4-Dioxane		ND		mg/kg	0.00822	0.00411	1
	Surrogate	% Recov	ery Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	11	13	Q	15-110		

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-31 Date Collected: 12/14/16 14:50 Client ID: B-2016-10-11.5-12 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil Extraction Method: EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 16:26 Analyst: WR

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00887 0.00444 mg/kg 1 Acceptance Surrogate % Recovery Qualifier Criteria 1,4-Dioxane-d8 113 Q 15-110



Percent Solids:

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

IPLE RESULTS

 Lab ID:
 L1641090-32
 Date Collected:
 12/14/16 15:40

 Client ID:
 B-2016-10-20-21.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ

Matrix: Soil

Analytical Method: 1,8270D-SIM Analytical Date: 12/24/16 17:12

Analyst: WR
Percent Solids: 89%

Date Collected: 12/14/16 15:40
Date Received: 12/16/16
Field Prep: Not Specified
Extraction Method:EPA 3570
Extraction Date: 12/20/16 21:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab				The state of the s		
1,4-Dioxane	ND		mg/kg	0.00868	0.00434	1
Surrogate	% Recove	ry Qu	alifier	Acceptance Criteria		
1,4-Dioxane-d8	116	,	Q	15-110		



Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

88%

Lab ID: L1641090-33 Date Collected: 12/15/16 13:15 Client ID: B-2016-11-5-5.5 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil Extraction Method: EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 17:58 Analyst: WR

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00906 0.00453 mg/kg 1 Acceptance Surrogate Qualifier % Recovery Criteria 1,4-Dioxane-d8 106 15-110

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-34 Date Collected: 12/15/16 13:30

Client ID: B-2016-11-11.5 Date Received: 12/16/16
Sample Location: RINGWOOD, NJ Field Prep: Not Specified
Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00
Analytical Date: 12/24/16 18:44
Analyst: WR

Percent Solids: 91%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxan	e by 8270D-SIM - Mansfield Lab		93 47 67 10 10 10 10 10 10 10 10 10 10 10 10 10				
1,4-Dioxane		ND		mg/kg	0.00825	0.00412	1
	Surrogate	% Recovery	, Qu	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	96			15-110		

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Date Collected: 12/15/16 11:40

Lab ID: L1641090-35 Client ID: B-2016-12-5.5-6 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 19:31 Analyst: WR Percent Solids: 89%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab					Here the second	
1,4-Dioxane		ND		mg/kg	0.00881	0.00441	1
	Surrogate	% Recov	ery Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	11	0		15-110		



Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

81%

Lab ID: L1641090-36 Date Collected: 12/15/16 11:30 Client ID: B-2016-12-4-4.5 Date Received: 12/16/16 Sample Location:

RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 21:00

Analytical Date: 12/24/16 20:17 Analyst: WR

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	e by 8270D-SIM - Mansfield Lab				MATERIAL STATES		
1,4-Dioxane		ND		mg/kg	0.00873	0.00436	1
	Surrogate	% Recover	y Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	110			15-110		

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-37 Date Collected: 12/14/16 13:15

Client ID: B-2016-13-5-5.5 Date Received: 12/16/16 Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 17:30

Analytical Date: 12/25/16 00:47

Analyst: WR

Percent Solids: 86%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	e by 8270D-SIM - Mansfield Lab		113 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
1,4-Dioxane		ND		mg/kg	0.00787	0.00393	1
	Surrogate	% Recovery	, Qu	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	112		Q	15-110		

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-38 Date Collected: 12/14/16 14:00 Client ID: B-2016-13-10-10.5 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 17:30

Analytical Date: 12/25/16 01:33 Analyst: WR

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab						
1,4-Dioxane		ND		mg/kg	0.00835	0.00417	1
	Surrogate	% Recover	ry Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	98			15-110		

Percent Solids:

83%

Not Specified

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

91%

IPLE RESULTS

 Lab ID:
 L1641090-39
 Date Collected:
 12/14/16 14:20

 Client ID:
 B-2016-13-15-15.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep:

Matrix: Soil Extraction Method:EPA 3570
Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 17:30

Analytical Date: 12/25/16 02:19
Analyst: WR

MDL **Parameter** Result Qualifier Units RL**Dilution Factor** 1,4 Dioxane by 8270D-SIM - Mansfield Lab 1,4-Dioxane ND 0.00805 0.00403 mg/kg 1 Acceptance Surrogate % Recovery Qualifier Criteria 1,4-Dioxane-d8 106 15-110



Percent Solids:

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-40 Date Collected: 12/15/16 12:45

Client ID:B-2016-14-4-4.5Date Received:12/16/16Sample Location:RINGWOOD, NJField Prep:Not SpecifiedMatrix:SoilExtraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 17:30
Analytical Date: 12/25/16 03:05

Analyst: WR
Percent Solids: 85%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfie	eld Lab	nus muss muss		31 (1995) 10 (1995)		
1,4-Dioxane		ND		mg/kg	0.00825	0.00412	1
	Surrogate	% Recove	ry Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	97			15-110		

Project Name: Lab Number: FORD-RINGWOOD L1641090

Project Number: Report Date: 140802-018 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-41 Client ID: B-2016-14-10-10.5

Sample Location: RINGWOOD, NJ

Matrix: Soil

Analytical Method: 1,8270D-SIM Analytical Date: 12/25/16 03:51

Analyst: WR Percent Solids: 89% Date Collected: 12/15/16 13:00 Date Received: 12/16/16 Field Prep: Not Specified Extraction Method:EPA 3570

Extraction Date: 12/20/16 17:30

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfield Lab						
1,4-Dioxane		ND		mg/kg	0.00800	0.00400	1
	Surrogate	% Recov	ery Qu	alifier	Acceptance Criteria		
	1.4-Dioxane-d8	96	6		15-110		

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

90%

1200210

Lab ID: L1641090-42 Date Collected: 12/14/16 12:00

Client ID: DUP-1 Date Received: 12/16/16
Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 17:30

Analytical Date: 12/25/16 04:37
Analyst: WR

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxar	ne by 8270D-SIM - Mansfi	eld Lab					
1,4-Dioxane		ND		mg/kg	0.00760	0.00380	1
	Surrogate	% Recov	ery Qua	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	10)5		15-110		

Percent Solids:

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-43 Date Collected: 12/15/16 12:00

Client ID: DUP-2 Date Received: 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil Extraction Method:EPA 3570

Analytical Method: 1,8270D-SIM Extraction Date: 12/20/16 17:30

Analytical Date: 12/25/16 05:23

Analyst: WR
Percent Solids: 92%

Parameter		Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxan	e by 8270D-SIM - Mansfield Lab		100 000 000 000 000 000 000				
1,4-Dioxane		ND		mg/kg	0.00778	0.00389	1
	Surrogate	% Recovery	y Qu	alifier	Acceptance Criteria		
	1,4-Dioxane-d8	107			15-110		

Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D-SIM Extraction Method: EPA 3570
Analytical Date: 12/24/16 01:55 Extraction Date: 12/20/16 21:00

Analyst: WR

Parameter	Result	Qualifier	Units	RL	MDL	
1,4 Dioxane by 8270D-SI	M - Mansfield Lab fo	r sample(s):	17-36	Batch: WG	963086-1	tradis
1,4-Dioxane	ND		mg/kg	0.00800	0.00400	

		Acceptance				
Surrogate	%Recovery	Qualifier	Criteria			
1.4-Dioxane-d8	121	Q	15-110			



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D-SIM Extraction Method: EPA 3570

Analytical Date: 12/24/16 22:29 Extraction Date: 12/20/16 17:30

Analyst: WR

Parameter	Result	Qualifier	Units	RL	MDL	
1,4 Dioxane by 8270D-SIM - M	ansfield Lab fo	r sample(s):	37-43	Batch: WG9	63089-1	176
1,4-Dioxane	ND		mg/kg	0.00800	0.00400	

	Acceptance						
Surrogate	%Recovery	Qualifier	Criteria				
1,4-Dioxane-d8	111	Q	15-110				



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D-SIM Extraction Method: EPA 3570

Analytical Date: 12/29/16 09:49 Extraction Date: 12/20/16 20:00 Analyst: SF

ParameterResultQualifierUnitsRLMDL1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s):01-16Batch:WG963107-11,4-DioxaneNDmg/kg0.008000.00400

	Acceptance					
Surrogate	%Recovery	Qualifier	Criteria			
1,4-Dioxane-d8	116	Q	15-110			



Lab Control Sample Analysis Batch Quality Control

Lab Number:

L1641090

Project Number:

Project Name:

140802-018

FORD-RINGWOOD

Report Date:

01/09/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	
1,4 Dioxane by 8270D-SIM - Ma	ansfield Lab Associated sample	le(s): 17-3	Batch: WG963	3086-2 W	/G963086-3				
1,4-Dioxane	97		103		40-140	6		30	

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	- i		
1,4-Dioxane-d8	133	Q	135	Q	15-110	

Lab Control Sample Analysis Batch Quality Control

Lab Number:

L1641090

Project Number:

Project Name:

140802-018

FORD-RINGWOOD

Report Date:

01/09/17

Parameter	LCS %Recovery Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	
1,4 Dioxane by 8270D-SIM - Mans	field Lab Associated sample(s): 37	7-43 Batch: WG96	3089-2 W	'G963089-3	The second secon			
1,4-Dioxane	104	105		40-140	1		30	

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	112	Q	100		15-110

Lab Control Sample Analysis Batch Quality Control

Lab Number:

L1641090 01/09/17

Project Number:

Project Name:

140802-018

FORD-RINGWOOD

Report Date:

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	
1,4 Dioxane by 8270D-SIM - Mansfield		le(s): 01-16		3107-2 W	/G963107-3		- 1000 CON	The second	
1,4-Dioxane	98		101		40-140	3		30	

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	120	Q	124	Q	15-110

INORGANICS & MISCELLANEOUS



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-01
 Date Collected:
 12/13/16 14:00

 Client ID:
 B-2016-1-5-5.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mans	sfield Lab									
Solids, Total	86.4		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-02
 Date Collected:
 12/13/16 14:15

 Client ID:
 B-2016-1-9-9.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfiel	d Lab								100 mg/s	
Solids, Total 8	6.6		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-03 Date Collected: 12/13/16 14:30

Client ID: B-2016-1-13.5-14 Date Received: 12/16/16
Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfi	eld Lab		100 miles (100 miles (and the second s		
Solids, Total	78.6		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-04
 Date Collected:
 12/14/16 09:45

 Client ID:
 B-2016-1-20-20.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Man	sfield Lab						160			
Solids, Total	88.7		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-05
 Date Collected:
 12/13/16 15:20

 Client ID:
 B-2016-2-4.5-5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfiel	d Lab			The state of the s			196			
Solids, Total 9	5.1		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 Report Date: 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-06 Date Collected: 12/13/16 15:35

Client ID: B-2016-2-11-11.5 Date Received: 12/16/16
Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mans	sfield Lab						90		200	
Solids, Total	85.9		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-07
 Date Collected:
 12/13/16 16:15

 Client ID:
 B-2016-2-16.5-17
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfiel	d Lab							Summer Section 1		
Solids, Total 8	6.6		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-08
 Date Collected:
 12/14/16 08:00

 Client ID:
 B-2016-2-21.5-22
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Man	sfield Lab					16	196	Company of the second s		
Solids, Total	76.1		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-09
 Date Collected:
 12/14/16 11:05

 Client ID:
 B-2016-3-5.5-6
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Man	sfield Lab							Company of the second of the s		
Solids, Total	85.2		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 Report Date: 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-10
 Date Collected:
 12/14/16 11:15

 Client ID:
 B-2016-3-9.5-10
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mans	field Lab							The same and		
Solids, Total	87.8		%	0.100	0.100	1	_	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-11
 Date Collected:
 12/14/16 11:55

 Client ID:
 B-2016-3-14-14.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mans	field Lab						100			
Solids, Total	77.8		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

SAMPLE RESULTS

 Lab ID:
 L1641090-12
 Date Collected:
 12/13/16 11:20

 Client ID:
 B-2016-4-8.5-9
 Date Received:
 12/16/16

 Sample Location:
 RINGWOOD, NJ
 Field Prep:
 Not Specified

Sample Location: RINGWOOD, NJ Field Prep:
Matrix: Soil

Dilution Date Date Analytical **Factor** Prepared Analyzed Method Result Qualifier Units MDL **Parameter** RL **Analyst** General Chemistry - Mansfield Lab Solids, Total 83.2 % 0.100 0.100 1 12/22/16 15:03 121,2540G SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-13
 Date Collected:
 12/13/16 11:30

 Client ID:
 B-2016-4-11.0-11.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Man	sfield Lab				and the same			Carlo de la Carlo		
Solids, Total	89.0		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Lab Number: **Project Name:** FORD-RINGWOOD L1641090

Project Number: 140802-018 Report Date: 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-14 Date Collected: 12/13/16 12:00 Client ID: B-2016-4-15-15.5 Date Received: 12/16/16 Not Specified

Sample Location: RINGWOOD, NJ Field Prep:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfiel	d Lab			muon				The second seco		
Solids, Total	7.5		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-15
 Date Collected:
 12/13/16 12:20

 Client ID:
 B-2016-4-20-20.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield	d Lab					160				
Solids, Total 8	9.0		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 Report Date: 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-16
 Date Collected:
 12/13/16 12:30

 Client ID:
 B-2016-4-23.5-24
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfiel	d Lab						190	The state of the s		
Solids, Total 8	3.8		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-17
 Date Collected:
 12/14/16 10:15

 Client ID:
 B-2016-5-.5-1
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfie	eld Lab						100		2000 - 10	
Solids, Total	84.9		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-18
 Date Collected:
 12/14/16 10:25

 Client ID:
 B-2016-5-11-11.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Man	sfield Lab									
Solids, Total	88.1		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-19
 Date Collected:
 12/14/16 10:45

 Client ID:
 B-2016-5-15-15.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Man	sfield Lab				and the same			Carlo de la Carlo		
Solids, Total	89.0		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-20
 Date Collected:
 12/15/16 10:10

 Client ID:
 B-2016-6-4.5-5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Man	sfield Lab							Carlotte and the second		
Solids, Total	90.0		%	0.100	0.100	1	-	12/22/16 15:03	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 Report Date: 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-21
 Date Collected:
 12/15/16 10:00

 Client ID:
 B-2016-6-1.5-2
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mans	sfield Lab								100 HTML	
Solids, Total	85.6		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-22
 Date Collected:
 12/15/16 08:40

 Client ID:
 B-2016-7-9-9.5
 Date Received:
 12/16/16

Client ID: B-2016-7-9-9.5 Date Received: 12/16/16
Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansf	field Lab						196 A. P. March			
Solids, Total	91.0		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-23
 Date Collected:
 12/15/16 08:55

 Client ID:
 B-2016-7-11.5-12
 Date Received:
 12/16/16

 Sample Location:
 RINGWOOD, NJ
 Field Prep:
 Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfiel	d Lab					160				
Solids, Total 7	6.0		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-24
 Date Collected:
 12/15/16 09:45

 Client ID:
 B-2016-8-11-11.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified Matrix: Soil

Dibation Data D. A. L.C. I

Parameter	Result	Qualifier U	nits	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - M	Mansfield Lab						Since 1900 - Since 1900 - Since			
Solids, Total	89.0		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-25
 Date Collected:
 12/15/16 09:35

 Client ID:
 B-2016-8-9-9.5
 Date Received:
 12/16/16

 Sample Location:
 RINGWOOD, NJ
 Field Prep:
 Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfie	ld Lab					6				
Solids, Total	90.5		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-26
 Date Collected:
 12/15/16 09:20

 Client ID:
 B-2016-8-4.5-5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfie	ld Lab	The Control of the Co					ing.			
Solids, Total	88.5		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-27
 Date Collected:
 12/15/16 10:55

 Client ID:
 B-2016-9-6-6.5
 Date Received:
 12/16/16

 Sample Location:
 RINGWOOD, NJ
 Field Prep:
 Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mans	field Lab								FREE PROPERTY.	
Solids, Total	91.6		%	0.100	0.100	1	_	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-28
 Date Collected:
 12/15/16 10:40

 Client ID:
 B-2016-9-2-2.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfie	ld Lab			and the second				Uma a tradition of the state o		
Solids, Total	90.2		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-29
 Date Collected:
 12/14/16 14:40

 Client ID:
 B-2016-10-4-4.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield	l Lab									
Solids, Total 89	9.7		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-30
 Date Collected:
 12/14/16 14:45

 Client ID:
 B-2016-10-9-9.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfiel	d Lab						100			
Solids, Total 9	0.8		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-31
 Date Collected:
 12/14/16 14:50

 Client ID:
 B-2016-10-11.5-12
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Manst	field Lab		propries							
Solids, Total	89.1		%	0.100	0.100	1	_	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

SAMPLE RESULTS

 Lab ID:
 L1641090-32
 Date Collected:
 12/14/16 15:40

 Client ID:
 B-2016-10-20-21.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Man	sfield Lab									
Solids, Total	88.8		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-33
 Date Collected:
 12/15/16 13:15

 Client ID:
 B-2016-11-5-5.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield	d Lab								100 mg	
Solids, Total 8	7.6		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-34
 Date Collected:
 12/15/16 13:30

 Client ID:
 B-2016-11-11-11.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfie	d Lab					167				
Solids, Total	8.0		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-35
 Date Collected:
 12/15/16 11:40

 Client ID:
 B-2016-12-5.5-6
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield	d Lab					16.7	The State of			
Solids, Total 89	9.0		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-36
 Date Collected:
 12/15/16 11:30

 Client ID:
 B-2016-12-4-4.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfiel	d Lab						The state of the s	900 0 10 10 10 10 10 10 10 10 10 10 10 10		
Solids, Total 8	0.7		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-37
 Date Collected:
 12/14/16 13:15

 Client ID:
 B-2016-13-5-5.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfi	eld Lab	The second secon					The Control of the Co			
Solids, Total	86.0		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



L1641090

Project Name: FORD-RINGWOOD Lab Number:

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-38
 Date Collected:
 12/14/16 14:00

 Client ID:
 B-2016-13-10-10.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mans	sfield Lab							Service Control of the Control of th		
Solids, Total	83.2		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



L1641090

Project Name: FORD-RINGWOOD Lab Number:

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-39
 Date Collected:
 12/14/16 14:20

 Client ID:
 B-2016-13-15-15.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mar	nsfield Lab							Service of the servic		
Solids, Total	91.3		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

 Lab ID:
 L1641090-40
 Date Collected:
 12/15/16 12:45

 Client ID:
 B-2016-14-4-4.5
 Date Received:
 12/16/16

Sample Location: RINGWOOD, NJ Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mans	field Lab							Service Control of the Control of th		
Solids, Total	84.8		%	0.100	0.100	1	-	12/22/16 03:02	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number:

L1641090

Project Number: 140802-018

Report Date: 01/09/17

SAMPLE RESULTS

Lab ID:

L1641090-41

Client ID:

B-2016-14-10-10.5

Sample Location: RINGWOOD, NJ

Matrix:

Soil

Date Collected:

12/15/16 13:00

Date Received:

12/16/16

Field Prep:

Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansf	ield Lab								Control of the contro	
Solids, Total	89.3		%	0.100	0.100	1	_	12/22/16 02:53	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-42

Client ID: DUP-1

Sample Location: RINGWOOD, NJ

Matrix: Soil

Date Collected: 12/14/16 12:00

Date Received: 12/16/16

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield	d Lab			Mary 1 Mary 1			The state of the s			9000
Solids, Total 90	0.0		%	0.100	0.100	1	-	12/22/16 02:53	121,2540G	SP



Project Name: FORD-RINGWOOD Lab Number: L1641090

Project Number: 140802-018 **Report Date:** 01/09/17

SAMPLE RESULTS

Lab ID: L1641090-43

Client ID: DUP-2

Sample Location: RINGWOOD, NJ

Matrix: Soil

Date Collected: 12/15/16 12:00

Date Received: 12/16/16

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfiel	d Lab						in the state of th			
Solids, Total 9	2.0		%	0.100	0.100	1	-	12/22/16 02:53	121,2540G	SP



Lab Duplicate Analysis Batch Quality Control

Project Name: FORD-RINGWOOD

Project Number: 140802-018

ality Control Lab Number:

Report Date:

L1641090 01/09/17

Parameter	Native Sample	Duplicate Sar	mple Units	RPD (Qual RPD Limits
General Chemistry - Mansfield Lab Associated sample(s)): 01-20 QC Batch ID:	WG963961-1	QC Sample: L10	641090-01 Client	ID: B-2016-1-5-5.5
Solids, Total	86.4	88.0	%	2	10
General Chemistry - Mansfield Lab Associated sample(s)): 21-40 QC Batch ID:	WG963964-1	QC Sample: L10	641090-21 Client	ID: B-2016-6-1.5-2
Solids, Total	85.6	87.2	%	2	10
General Chemistry - Mansfield Lab Associated sample(s)): 41-43 QC Batch ID:	WG963965-1	QC Sample: L10	641090-41 Client	ID: B-2016-14-10-10.5
Solids, Total	89.3	89.4	%	0	10



Project Name: FORD-RINGWOOD

Lab Number: L1641090 Project Number: 140802-018 **Report Date:** 01/09/17

Sample Receipt and Container Information

NO Were project specific reporting limits specified?

Cooler Information Custody Seal

Cooler

Α Absent

Container Info	ormation			Temp			
Container ID	Container Type	Cooler	рН	deg C	Pres	Seal	Analysis(*)
L1641090-01A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-02A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-03A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-04A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-05A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-06A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-07A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-08A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-09A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-10A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-11A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-12A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-13A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-14A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-15A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-16A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-17A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-18A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-19A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-20A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-21A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)



Project Name: FORD-RINGWOOD

Project Number: 140802-018

Lab Number: L1641090 **Report Date:** 01/09/17

Container Info	rmation			Temp			
Container ID	Container Type	Cooler	рН	deg C	Pres	Seal	Analysis(*)
L1641090-22A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-23A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-24A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-25A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-26A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-27A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-28A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-29A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-30A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-31A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Y	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-32A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Y	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-33A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-34A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Y	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-35A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Y	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-36A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-37A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-38A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-39A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-40A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-41A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-42A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)
L1641090-43A	Glass 120ml/4oz unpreserved	Α	N/A	4.1	Υ	Absent	A2-NJ-1,4DIOXANE- SIM(14),A2-TS(7)



Project Name: Lab Number: FORD-RINGWOOD L1641090 **Project Number:** 140802-018 Report Date: 01/09/17

GLOSSARY

Acronyms

EDL

MS

- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of

analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for

which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL

includes any adjustments from dilutions, concentrations or moisture content, where applicable

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less

than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the

associated field samples.

STLP Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1

- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A - Spectra identified as "Aldol Condensation Product".
- В - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: DU Report with 'J' Qualifiers



Project Name:FORD-RINGWOODLab Number:L1641090Project Number:140802-018Report Date:01/09/17

Data Qualifiers

- reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
- H The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I The lower value for the two columns has been reported due to obvious interference.
- M Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P The RPD between the results for the two columns exceeds the method-specified criteria.
- The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R Analytical results are from sample re-analysis.
- RE Analytical results are from sample re-extraction.
- S Analytical results are from modified screening analysis.
- Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name:FORD-RINGWOODLab Number:L1641090Project Number:140802-018Report Date:01/09/17

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.
Facility: Company-wide

Department: Quality Assurance

Title: Certificate/Approval Program Summary

ID No.:17873 Revision 7

Published Date: 8/5/2016 11:25:56 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: lodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-

Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility SM 2540D: TSS EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachus etts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Nitrate-N, Fluoride, Sulfate; EPA 353.2: Nitrate-N, Nitrite-N; SM4500NO3-F: Nitrate-N, Nitrite-N; SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B

EPA 332: Perchlorate; EPA 524.2: THMs and VOCs; EPA 504.1: EDB, DBCP. Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D.

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1: Ammonia-N, LACHAT 10-107-06-1-B: Ammonia-N, SM4500NO3-F, EPA 353.2: Nitrate-N, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan II, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), EPA 600/4-81-045: PCB-Oil.

Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. EPA 200.8: Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. EPA 245.1 Hg.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg. SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Document Type: Form Pre-Qualtrax Document ID: 08-113

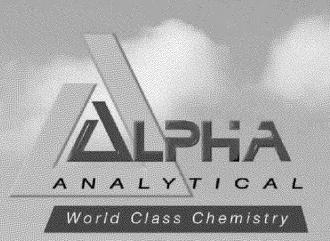
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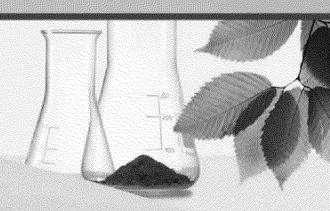
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11011004	C = Other E = Encore	John Dil		12/6/6	13':30	Some State	(Z)~	146	<u>س ا</u>	2/16/1	6 1.3	ح3، ۲	THIS COC, THE CLIEN	
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Westborough, MA 01581 8 Walkup Dr.	Mansfield, MA 02048 320 Forbes Blvd	Project Information					Delive	erables				Billing Information	
TEL: 508-898-9220	TEL: 508-822-9300	Project Name: Fool-	sing wood				】	NJ Full / Red	luced		_	Same as Client Info	_
FAX: 508-898-9193	FAX: 508-822-3288	Project Location: Ring		•			1 🗋	EQuIS (1 File	e) [] EQul	S (4 File)	PO# U641096	3
Client Information		Project # 140802 - 0						Other					
Client: Cornerston	· e	(Use Project name as Pr		*		*	Regul	latory Require	ement			Site Information	
Address: 100 Cins		Project Manager: 1m		_				SRS Reside	ntial/Non	Reside	ntial	Is this site impacted by	_
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Phone: 845-695-		Turn-Around Time						NJ Ground V	Vater Qu	ality Sta	ndards	Petroleum Product:	
Fax:		Standard		Due Date:				NJ IGW SPL	P Leach	ate Crite	eria		
Email: Tim. Rosos	era) (arners forces	Rush (only if pre approved) 🗍	# of Days:				Other					
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-33	B-2016 -	11-5-5.5	12/15/16	13:12	S	76	X						
-34	B-2016 -	11-11-115	12/15/16	13:30	5	26	X						
-35	8-2016-13	2-55-6	12/15/16	11:46	S	2.6	X						
-36	B-3016 -	12-4-4.5	12/15/14	11:30	5	3 G	X						
道: - 3 7	B-8016 -	13.5.5.5	12/14/16	13:15	5	26	X						
-38	B-2016-1	3 - 10-10.5	12/4/16	14:00	S	26	X						
- 39	B-3016-1	3-15-15.5	12/14/16	14:50	\$	26	X						
-40	B-2016-1	4-4-4.5	12/15/6	12:45	S	56	Х						
Preservative Code: A = None B = HCl	Container Code P = Plastic A = Amber Glass	Westboro: Certification N Mansfield: Certification N			Cor	itainer Type	А					Please print clearly, legibly and completely. Samples ca	
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F = MeOH	C = Cube O = Other	Relinquished	Ву:	Date/	Time		Receiv	red By:		Date	Time	resolved. BY EXECUTING	
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Westborough, MA 01581 8 Walkup Dr.	Mansfield, MA 02048 320 Forbes Blvd	Project Information					Delive	rables						Billing Information	
TEL: 508-898-9220	TEL: 508-822-9300	Project Name: Ford-	Ringwood				K	NJ Full /	Reduce	d				Same as Client Info	
FAX: 508-898-9193	FAX: 508-822-3288	Project Location: Ragu						EQuIS (1	File)		EQui	S (4 File	∌)	PO#	
Client Information		Project # 140802 -0] 🗆 :	Other							
Client: Corneratore		(Use Project name as Pro	r				Regul	atory Re	quireme	nt				Site Information	
Address: 100 caysh	, Run Rd	Project Manager: Tim	Roeper					SRS Res	idential	/Non F	Resider	ntial		Is this site impacted by	
Middle Lown, MY		ALPHAQuote #:				-	1 🗀 :	SRS Imp	act to G	round	water			Petroleum? Yes	
Phone: 845 - 695 -		Turn-Around Time						NJ Groui	nd Wate	er Qual	ity Sta	ndards		Petroleum Product:	
Fax:		Standard	X	Due Date:			1 🗆 1	NJ IGW	SPLP L	eachat	e Crite	eria			
Email: Tim Rospra	(or nat Slove en Com	┥		# of Days:	:			Other							
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Category 2	8011							l						Lab to do	В
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B = HCI	A = Amber Glass V = Vial	Mansfield: Certification N	o: MA015				 `` -			<u> </u>	<u> </u>	<u> </u>		and completely. Samples on not be logged in and	can
$C = HNO_3$ $D = H_2SO_4$	G = Glass				F	Preservative	IA I							turnaround time clock will	not
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K/E = Zn Ac/NaOH	D = BOD Bottle	Boun B/	14/100	12/16/16	16:17	Tom	10	ew	_/_	26	76	180	10	TO BE BOUND BY ALPHA	A'S
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www.alphalab.com



Lab Number: L1641084

Client: Cornerstone/Cadena Co. joint acc

ATTN: Jim Tomalia

Project Name: FORD-RINGWOOD

Project Number: 140802-018

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Title Page - NJDEP

ANALYTICAL DATA PACKAGE FOR THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION TRENTON NEW JERSEY 08625

Agency/Division:	Bureau/Office:
Project No: 140802-018	Contract No:
Laboratory: Alpha Analytical	Laboratory Location: Westborough, Ma.
	Laboratory Phone Number: (508) 898-9220

SDG No: L1641084 NJDEP Certification #: MA015/MA935

Date of First Sample Receipt: 12/16/2016 Date of Last Sample Receipt: 12/16/2016

Agency Sample Number	Laboratory Sample Number	Sample Location	Date/Time of Collection
PW-1	L1641084-01	FORD-RINGWOOD	12/15/2016 07:30
PW-2	L1641084-02	FORD-RINGWOOD	12/15/2016 07:40

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on disk or electronically has been authorized by the laboratory director or his/her designee, as verified by the following signature.

Technical Director/Representative (Typed) Sue ONeil	01/04/17
Technical Director/Representative (Signature)	

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Sample Raw Data	
PW-1 (L1641084-01) Analyzed: 01/03/17 03:25	
PW-2 (L1641084-02) Analyzed: 01/03/17 04:08	
Method Blank Raw Data	
Laboratory Method RI (WG963084-1) Analyzed: 01/03/17 01:18	19

Chain of Custody



Address: Peters Mi 100 crystal Run Rd, L Phone: 845-695- Fax:	CUSTODY Tonawanda, NY 14150: 275 Cooper Ave, Suite 105 In Lab CUSTODY Tonawanda, NY 14150: 275 Cooper Ave, Suite 105 In Lab CUSTODY Tonawanda, NY 14150: 275 Cooper Ave, Suite 105 In Lab CUSTODY Tonawanda, NY 14150: 275 Cooper Ave, Suite 105 Project Information Deliverables FAX: 508-892-9300 FAX: 508-822-3288 Project Name: For d - Ringwood Project Location: Ringwood, VJ EQuIS (1 File) EQUIS (4 File)				e)	Billing Information Same as Client Info Po # Site Information Is this site impacted by Petroleum? Yes Petroleum Product:													
These samples have be		<u> </u>		., J. Days.			AN	ALYSIS					\dashv	Sample Filtration					
		Other project specific requirements/comments: Please specify Metals or TAL.					0/48-3VOL-8270	7 FAT - 81.1034A		***************************************				Done Lab to do Preservation Lab to do (Please Specify below)					
ALPHA Lab ID	Sa	mple ID	Colle		Sample	Sampler's	3 5	3					ļ	t					
(Lab Use Only)			Date	Time	Matrix	—————————————————————————————————————	₹9				ļ			Sample Specific Comments e					
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-02	PW-2		12/12/16	7:40	Paint kinde	26	X				ļ								
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B = HCI C = HNO ₃	Container Code P = Plastic A = Amber Glass V = Vial G = Glass	Westboro: Certification No: MA935 Mansfield: Certification No: MA015					= Plastic		5 Contain		tainer Type								Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not
	B = Bacteria Cup			10361 Valive	7							start until any ambiguities are							
F = MeOH	C = Cube	Relinquished E	Date/	Time		Rece	eived By			Date	/Time		resolved. BY EXECUTING						
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Form No: 01-14 HC (rev. 30	0-Sept-2013)	13 Tyung	jā	17/10	12:35	12:35 Broth Son			Ad	16	17/1	602	35	(See reverse side.)					

ALPHA ANALYTICAL LABORATORIES, INC. LOGIN CHAIN OF CUSTODY REPORT Jan 04 2017, 03:05 pm

Login Number: L1641084

Account: CSTONE-CADENACO Cornerstone/Cadena Co. joint accountProject: 140802-018

Received: 16DEC16 Due Date: 23DEC16

Received: 16DEC16 Due Date: 23DEC16 Sample # Client ID Mat PR Collected Container	TIL MARKETAN
L1641084-01 PW-1 4 S0 15DEC16 07:30 1-BAG When breaking up chunks, use center of material to run analysis NJ-RED Package Due Date: 12/23/16	
A2-1,4-DIOXANE-SIM,NJ-RED,NJDEP,TS100	
L1641084-02 PW-2 4 S0 15DEC16 07:40 1-BAG	
When breaking up chunks, use center of material to run analysis Package Due Date: 12/23/16	
A2-1,4-DIOXANE-SIM,TS100	

Page 1

Logged By: Michael Chang

ALPHA ANALYTICAL LABORATORIES Container Tracking Report

Container ID Type	Status	Transaction Date	From Response	Location	To Operator	Response	Location	Operator
L1641084-01A BAG	INTACT	20-DEC-16	CUSTODY	A2-ORGANIC PREP	Tyler Snook	A2-CUSTODY-FRZ1-U	1 A2-CUSTODY-FR	Z1-U1 Tyler Snook
L1641084-01A BAG	INTACT	20-DEC-16	A2-CUSTODY-REFRI	DGE A2-CUSTODY-I	FRZ1-U1 Sarah Barr	A2-ORGANIC	PREP A2-ORGANI	C PREP Sarah Barr
L1641084-01A BAG	INTACT	17-DEC-16	A2-CUSTODY-REFRI	DGE A2-CUSTODY-I	REFRIDGE Bethany Bedai	d A2-CUSTOE	Y-FRZ1-U1 A2-CU	STODY-FRZ1-U1 Bethany Bedard
L1641084-01A BAG	INTACT	17-DEC-16	A2-LOGIN	A2-LOGIN	Michael Chang	A2-CUSTODY-REFRIE	GE A2-CUSTODY-R	EFRIDGE Michael Chang
L1641084-02A BAG	INTACT	20-DEC-16	CUSTODY	A2-ORGANIC PREP	Tyler Snook	A2-CUSTODY-FRZ1-U	1 A2-CUSTODY-FR	Z1-U1 Tyler Snook
L1641084-02A BAG	INTACT	20-DEC-16	A2-CUSTODY-REFRI	DGE A2-CUSTODY-I	FRZ1-U1 Sarah Barr	A2-ORGANIC	PREP A2-ORGANI	C PREP Sarah Barr
L1641084-02A BAG	INTACT	17-DEC-16	A2-CUSTODY-REFRI	DGE A2-CUSTODY-I	REFRIDGE Bethany Bedai	rd A2-CUSTOE	Y-FRZ1-U1 A2-CU	STODY-FRZ1-U1 Bethany Bedard
L1641084-02A BAG	INTACT	17-DEC-16	A2-LOGIN	A2-LOGIN	Michael Chang	A2-CUSTODY-REFRIE	GE A2-CUSTODY-R	EFRIDGE Michael Chang

Methodology Review



Project Name:FORD-RINGWOODLab Number:L1641084Project Number:140802-018Report Date:01/04/17

REFERENCES

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Laboratory Chronicle



Project Name:FORD-RINGWOODLab Number:L1641084Project Number:140802-018Report Date:01/04/17

Sample Receipt and Container Information

Were project specific reporting limits specified?

Cooler Information Custody Seal

Cooler

A Absent

Container Info	rmation			Temp			
Container ID	Container Type	Cooler	рН	deg C	Pres	Seal	Analysis(*)
L1641084-01A	Bag	Α	N/A	4.3	Υ	Absent	A2-1,4-DIOXANE-SIM(14)
I 1641084-02A	Rag	Α	N/A	4.3	Υ	Absent	A2-1 4-DIOXANE-SIM(14)



NJ DEP Data of Known Quality Protocols Conformance/Non-Conformance Summary Questionnaire



Project Name:FORD-RINGWOODLab Number:L1641084Project Number:140802-018Report Date:01/04/17

NJ DEP Data of Known Quality Protocols Conformance/Non-Conformance Summary Questionnaire

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the NJDEP Data of Known Quality performance standards?	YES
1a	Were the method specified handling, preservation, and holding time requirements met?	YES
1b	EPH Method: Was the EPH Method conducted without significant modifications (see Section 11.3 of respective DKQ methods)?	N/A
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	YES
3	Were all samples received at an appropriate temperature (4 ± 2° C)?	YES
4	Were all QA/QC performance criteria specified in the NJDEP DKQP standards achieved?	YES
5a	Were reporting limits specified or referenced on the chain-of-custody or communicated to the laboratory prior to sample receipt?	NO
5b	Were these reporting limits met?	N/A
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the DKQP documents and/or site-specific QAPP?	NO
7	Are project-specific matrix spikes and/or laboratory duplicates included in this data set?	NO

Note: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1a or #1b is "No", the data package does not meet the requirements for "Data of Known Quality".



Conformance/Non-Conformance Summary



Project Name:FORD-RINGWOODLab Number:L1641084Project Number:140802-018Report Date:01/04/17

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.



Project Name: FORD-RINGWOOD Lab Number: L1641084
Project Number: 140802-018 Report Date: 01/04/17

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

DKQP Related Narratives

Report Submission

In reference to question 5a:

Reporting limits were not specified.

Semi-Volatiles

In reference to question 6:

At the client's request, all submitted samples were not analyzed for the full DKQP list of constituents identified in the method specific analyte list presented in the DKQP documents.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Luxen & Med

Report Date: 01/04/17

Title: Technical Director/Representative



Glossary



Project Name:FORD-RINGWOODLab Number:L1641084Project Number:140802-018Report Date:01/04/17

GLOSSARY

Acronyms

EDL

- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of

analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of

analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any

adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for

which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's

reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL

includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less

than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Co. 1. 1.D. C. Mark 11. A. C. 1. C. 1.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the

associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1

- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A Spectra identified as "Aldol Condensation Product".
- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: DU Report with 'J' Qualifiers



Project Name:FORD-RINGWOODLab Number:L1641084Project Number:140802-018Report Date:01/04/17

Data Qualifiers

- reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations
 of the analyte.
- E Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
- H The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I The lower value for the two columns has been reported due to obvious interference.
- M Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P The RPD between the results for the two columns exceeds the method-specified criteria.
- The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R Analytical results are from sample re-analysis.
- RE Analytical results are from sample re-extraction.
- S Analytical results are from modified screening analysis.
- Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Organics



GC/MS Extractable Analysis Method 8270 Selective Ion Monitoring

Sample Results Summary

Form 1 SemiVolatile Organics

Client : Cornerstone/Cadena Co. joint accoun Lab Number : L1641084 **Project Name** : FORD-RINGWOOD **Project Number** : 140802-018 : L1641084-01 Lab ID Date Collected : 12/15/16 07:30 Client ID : PW-1 Date Received : 12/16/16 Sample Location: RINGWOOD, NJ Date Analyzed : 01/03/17 03:25

Sample Matrix : Paint Date Extraced : 12/20/16

Analytical Method: 1,8270D-SIM DilutionFactor : 1 Lab File ID : F601021724 Analyst : SF Sample Amount : 5.58 g Instrument ID : BNA6 Extraction Method: EPA 3570 GC Column : RTX-5 **Extract Volume** : 4000 uL %Solids : 100 **GPC Cleanup** : N Injection Volume: 1 uL

 CAS NO.
 Parameter
 Results
 RL
 MDL
 Qualifier

 123-91-1
 1,4-Dioxane
 ND
 7.17
 3.58
 U



Form 1 SemiVolatile Organics

Client : Cornerstone/Cadena Co. joint accoun Lab Number : L1641084 **Project Name** : FORD-RINGWOOD **Project Number** : 140802-018 : L1641084-02 Lab ID Date Collected : 12/15/16 07:40 Client ID : PW-2 Date Received : 12/16/16 Sample Location: RINGWOOD, NJ Date Analyzed : 01/03/17 04:08

Sample Matrix : Paint Date Extraced : 12/20/16

Analytical Method: 1,8270D-SIM DilutionFactor : 1 Lab File ID : F601021725 Analyst : SF Sample Amount : 5.75 g Instrument ID : BNA6 Extraction Method: EPA 3570 GC Column : RTX-5 **Extract Volume** : 4000 uL %Solids : 100 **GPC Cleanup** : N Injection Volume: 1 uL

 CAS NO.
 Parameter
 Results
 RL
 MDL
 Qualifier

 123-91-1
 1,4-Dioxane
 ND
 6.96
 3.48
 U



Form 1 SemiVolatile Organics

Client : Cornerstone/Cadena Co. joint accoun Lab Number : L1641084
Project Name : FORD-RINGWOOD Project Number : 140802-018

Lab ID : WG963084-1 Date Collected : NA Client ID : WG963084-1BLANK Date Received : NA

Sample Location : Date Analyzed : 01/03/17 01:18 Sample Matrix : SOLID Date Extraced : 12/20/16

Analytical Method: 1,8270D-SIM

Lab File ID : F601021721

Sample Amount : 5 g

Extraction Method: EPA 3570

DilutionFactor : 1

Analyst : SF

Instrument ID : BNA6

GC Column : RTX-5

Extract Volume : 4000 uL %Solids : NA
GPC Cleanup : N Injection Volume : 1 uL

 CAS NO.
 Parameter
 Results
 RL
 MDL
 Qualifier

 123-91-1
 1,4-Dioxane
 ND
 8.00
 4.00
 U



Tuning Results Summary

Instrument Performance Check Decafluorotriphenylphosphine (DFTPP) Form 5

Client : Cornerstone/Cadena Co. joint accoun Lab Number : L1641084

Project Name : FORD-RINGWOOD Project Number : 140802-018

Instrument ID : BNA6 Analysis Date : 12/29/16 12:33

Tune Standard : R932366-9 Tune File ID : F612291603_tune

m/e	Ion Abundance Criteria	%Relative Abundance
51	10.0 - 80.0% of Base Peak	40
68	Less than 2.0% of mass 69	0 (0)1
70	Less than 2.0% of mass 69	0.2 (.6)1
127	10.0 - 80.0% of Base Peak	49.4
197	Less than 2.0% of mass 198	0
198	Base Peak, or >50% of mass 442	100
199	5.0 - 9.0% of mass 198	6.9
275	10.0 - 60.0% of Base Peak	26.4
365	Greater than 1.0% of mass 198	3
441	Present, but less than 24% of mass 442	15.6
442	Base Peak, or >50% of mass 198	95.5
443	15.0 - 24.0% of mass 442	18.8 (19.7)2

¹⁻Value is % of mass 69 2-Value is % of mass 442

This Check Applies to the following Samples, MS, MSBlanks, and Standards:

Client Sample ID	Lab Sample ID	File ID	Analysis Date/Tme
STD 10	R932366-1	F612291604	12/29/16 13:28
STD 50	R932366-3	F612291605	12/29/16 14:11
STD 100	R932366-5	F612291606	12/29/16 14:54
STD 500	R932366-4	F612291607	12/29/16 15:37
STD 1000	R932366-2	F612291608	12/29/16 16:21
STD 5000	R932366-6	F612291609	12/29/16 17:04
STD 10000	R932366-7	F612291610	12/29/16 17:47
ICV Quant Report STD 1000	R932366-8	F612291611	12/29/16 18:30



Instrument Performance Check Decafluorotriphenylphosphine (DFTPP) Form 5

Client : Cornerstone/Cadena Co. joint accoun Lab Number : L1641084

Project Name : FORD-RINGWOOD Project Number : 140802-018

Instrument ID : BNA6 Analysis Date : 01/02/17 20:50

Tune Standard : WG964509-13 Tune File ID : F601021715_tune

m/e	Ion Abundance Criteria	%Relative Abundance
51	10.0 - 80.0% of Base Peak	39.5
68	Less than 2.0% of mass 69	0 (0)1
70	Less than 2.0% of mass 69	0.2 (.6)1
127	10.0 - 80.0% of Base Peak	50
197	Less than 2.0% of mass 198	0
198	Base Peak, or >50% of mass 442	100
199	5.0 - 9.0% of mass 198	7
275	10.0 - 60.0% of Base Peak	26
365	Greater than 1.0% of mass 198	3
441	Present, but less than 24% of mass 442	15.6
442	Base Peak, or >50% of mass 198	87.1
443	15.0 - 24.0% of mass 442	17.3 (19.9)2
	4 \/_lu_ i= 0/ _f CO 2 \/_lu_ i= 0/ _f A	10

¹⁻Value is % of mass 69 2-Value is % of mass 442

This Check Applies to the following Samples, MS, MSBlanks, and Standards:

Client Sample ID	Lab Sample ID	File ID	Analysis Date/Tme
WG964509-15CCAL	WG964509-15	F601021716	01/02/17 21:45
WG963084-1BLANK	WG963084-1	F601021721	01/03/17 01:18
WG963084-2LCS	WG963084-2	F601021722	01/03/17 02:00
WG963084-3LCSD	WG963084-3	F601021723	01/03/17 02:43
PW-1	L1641084-01	F601021724	01/03/17 03:25
PW-2	L1641084-02	F601021725	01/03/17 04:08



Blank Results Summary

Method Blank Summary Form 4

: Cornerstone/Cadena Co. joint accoun Lab Number : FORD-RINGWOOD Project Number Client : L1641084 Project Name : FORD-RINGWOOD : 140802-018 Lab File ID Lab Sample ID : WG963084-1 : F601021721 Instrument ID : BNA6 Extraction Date : 12/20/16 : SOLID : 01/03/17 01:18 Matrix Analysis Date Level : LOW

Client Sample No.	Lab Sample ID	Analysis Date	
WG963084-2LCS	WG963084-2	01/03/17 02:00	
WG963084-3LCSD	WG963084-3	01/03/17 02:43	
PW-1	L1641084-01	01/03/17 03:25	
PW-2	L1641084-02	01/03/17 04:08	



Standards Data Summary



Initial Calibration Summary Form 6

Client : Cornerstone/Cadena Co. joint accoun Lab Number : L1641084
Project Name : FORD-RINGWOOD Project Number : 140802-018
Instrument ID : BNA6 | Ical Ref : ICAL13258

Calibration dates : 12/29/16 13:28 12/29/16 17:47

Calibration Files

10 =F612291604.D 50 =F612291605.D 100 =F612291606.D 500 =F612291607.D 1000=F612291608.D

5000=F612291609.D 1e4 =F612291610.D

	Compound	10	50	100	500	1000	5000	1e4	Avg	%RSD	
1)	1,4-Dioxane-d8 (IS)			1	STD						
2)	1,4-dioxane	1.262	1.297	1.259	1.269	1.305	1.309	1.375	1.297	3.10	
3) I	1,4-Dichlorobenzene-d4			I	STD						
4) s	1,4-dioxane-d8	0.933	1.004	1.039	1.064	1.091	1.151	1.181	1.066	7.95	



Continuing Calibration Form 7

Client : Cornerstone/Cadena Co. joint accoun Lab Number : L1641084
Project Name : FORD-RINGWOOD Project Number : 140802-018

Instrument ID : BNA6 Calibration Date : 01/02/17 21:45

Channel:

	Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
	1,4-Dioxane-d8 (IS)	1	1	-	0	20	87	08
***************************************	1,4-dioxane	1.297	1.315	-	-1.4	20	88	08
***************************************	1,4-Dichlorobenzene-d4	1	1	_	0	20	79	01
***************************************	1,4-dioxane-d8	1.066	1.211	_	-13.6	20	87	08



^{*} Value outside of QC limits.

Surrogate Summary

Form 2 Surrogate Recovery SEMIVOLATILES

Client: Cornerstone/Cadena Co. joint account

Project Name: FORD-RINGWOOD

Lab Number: L1641084 Project Number: 140802-018

Matrix: Paint

CLIENT ID (LAB SAMPLE NO.)	S1 ()	S2 ()	S3 ()	S4 ()	S5 ()	S6 ()	TOT OUT	
WG963084-3LCSD	99						0	
WG963084-2LCS	100						0	
WG963084-1BLANK	106						0	
PW-1 (L1641084-01)	58						0	
PW-2 (L1641084-02)	54						0	

QC LIMITS (15-110)

S1 = 1,4-DIOXANE-D8

* Values outside of QC limits

FORM II A2-1,4-DIOXANE-SIM



Batch QC Summary

Laboratory Control Sample Form 3

Client : Cornerstone/Cadena Co. joint accoun Lab Number : L1641084
Project Name : FORD-RINGWOOD Project Number : 140802-018

Matrix : SOLID

LCS Sample ID : WG963084-2 Analysis Date 01/03/17 02:00 File ID : F601021722 LCSD Sample ID : WG963084-3 Analysis Date 01/03/17 02:43 File ID : F601021723

Laboratory Control Sample Laboratory Control Duplicate

			=						
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/kg)	(ug/kg)		(ug/kg)	(ug/kg)			Limits	Limit
1,4-Dioxane	400	384.	96	400	393.	98	2	40-140	30



Internal Standard Summary

Internal Standard Area and RT Summary Form 8

Client : Cornerstone/Cadena Co. joint accoun Lab Number : L1641084

Project Name : FORD-RINGWOOD Project Number : 140802-018
Instrument ID : BNA6 Analysis Date : 01/02/17 21:45

Sample No : WG964509-15 Lab File ID : F601021716

1,4-Dichlorobenzene-d4

	Area	RT	Area	RT	Area	RT
WG964509-15	64013	15.71			***************************************	***************************************
Upper Limit	128026	16.21				
Lower Limit	32007	15.21				
Sample ID						
WG963084-1 BLANK	48054	15.71				***************************************
NG963084-2 LCS	46190	15.71				
NG963084-3 LCSD	41913	15.71				
PW-1	62867	15.75				
PW-2	100418	15.78				

Area Upper Limit = +100% of internal standard area Area Lower Limit = -50% of internal standard area RT Upper Limit = +0.50 minutes of internal standaRT RT Lower Limit = -0.50 minutes of internal standaRT



^{*} Values outside of QC limits

Chromatograms

Sample Raw Data

Quantitation Report (QT Reviewed)

Data Path: 0:\Organics\DATA\BNA6\2017\JAN\JAN02\

Data File : F601021724.D

Acq On : 3 Jan 2017 3:25 am

Operator : BNA6:SF Sample : L1641084-01

Sample : L1641084-01
Misc : WG964509,WG963084,ICAL13258
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jan 03 20:29:07 2017

Quant Method: 0:\Organics\DATA\BNA6\2017\JAN\JAN02\14DIOX1229BNA6.M

Quant Title : Semivolatiles by GC/MS QLast Update : Thu Dec 29 20:10:25 2016

Response via: Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T. QIon	Response Conc Units Dev (Min)	
Internal Standards 1) 1,4-Dioxane-d8 (IS) 3) 1,4-Dichlorobenzene-d4	8.980 64 15.752 152	39138 500.000 ng/mL -0.1 62867M4 500.000 ng/mL 0.	
System Monitoring Compounds 4) 1,4-dioxane-d8 Spiked Amount 500.000	8.980 64 Range 15 - 115	39138 291.938 ng/mL -0.12 Recovery = 58.39%	2
Target Compounds 2) 1,4-dioxane	0.000	Qvalue 0 N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

14DIOX1229BNA6.M Tue Jan 03 20:34:43 2017

Sub List : Default - All compounds listed Reviewed)

Data Path: 0:\Organics\DATA\BNA6\2017\JAN\JAN02\

Data File : F601021724.D

Acq On : 3 Jan 2017 3:25 am

Operator : BNA6:SF Sample : L1641084-01

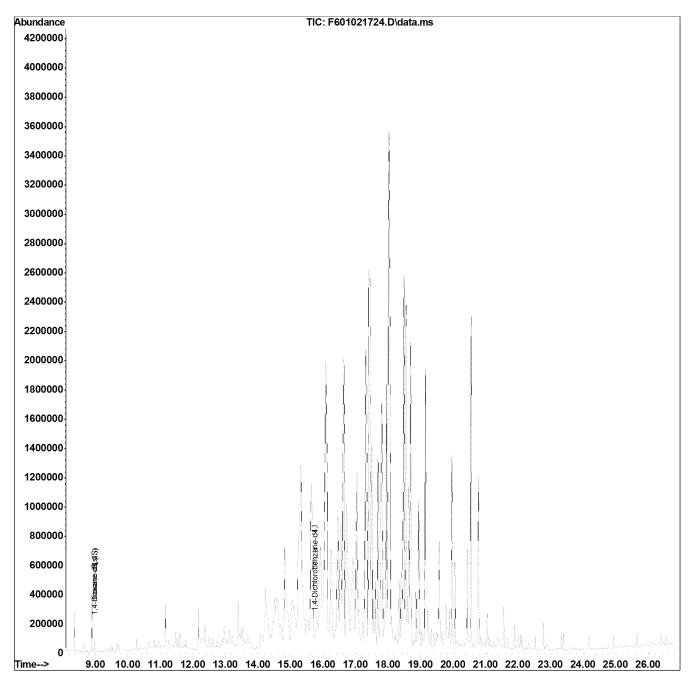
Misc : WG964509, WG963084, ICAL13258 ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jan 03 20:29:07 2017

Quant Method: O:\Organics\DATA\BNA6\2017\JAN\JAN02\14DIOX1229BNA6.M

Quant Title : Semivolatiles by GC/MS QLast Update : Thu Dec 29 20:10:25 2016

Response via: Initial Calibration



14DIOX1229BNA6.M Tue Jan 03 20:34:43 2017

Page: 2

Quantitation Report (QT Reviewed)

Data Path: O:\Organics\DATA\BNA6\2017\JAN\JAN02\

Data File : F601021725.D

Acq On : 3 Jan 2017 4:08 am

Operator : BNA6:SF

Sample : L1641084-02
Misc : WG964509, WG963084, ICAL13258 ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jan 03 20:30:45 2017

Quant Method: 0:\Organics\DATA\BNA6\2017\JAN\JAN02\14DIOX1229BNA6.M

Quant Title : Semivolatiles by GC/MS QLast Update: Thu Dec 29 20:10:25 2016

Response via: Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T.	QIon	Response	Conc Units Dev(Min)
Internal Standards 1) 1,4-Dioxane-d8 (IS) 3) 1,4-Dichlorobenzene-d4	8.980 15.784	64 152	57887 100418M4	٠
System Monitoring Compounds 4) 1,4-dioxane-d8 Spiked Amount 500.000	8.980 Range 15			270.324 ng/mL -0.12 ry = 54.06%
Target Compounds 2) 1,4-dioxane	9.135	88	706M4	Qvalue 4.703 ng/mL

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Sub List : Default - All compounds listed Reviewed)

Data Path: 0:\Organics\DATA\BNA6\2017\JAN\JAN02\

Data File : F601021725.D

Acq On : 3 Jan 2017 4:08 am

Operator : BNA6:SF Sample : L1641084-02

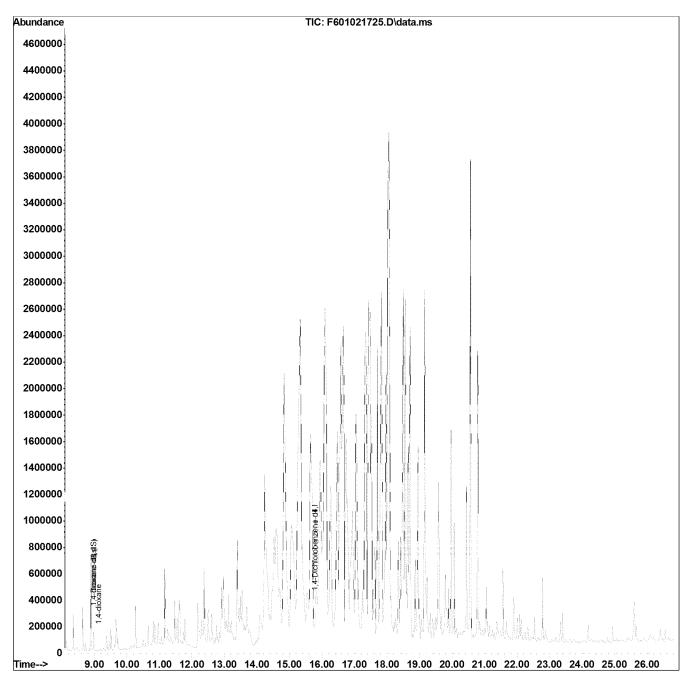
Misc: WG964509, WG963084, ICAL13258 ALS Vial: 23 Sample Multiplier: 1

Quant Time: Jan 03 20:30:45 2017

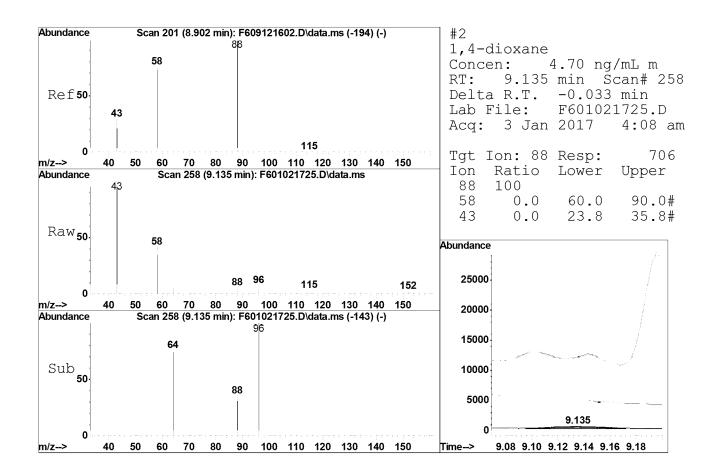
Quant Method: 0:\Organics\DATA\BNA6\2017\JAN\JAN02\14DIOX1229BNA6.M

Quant Title : Semivolatiles by GC/MS QLast Update : Thu Dec 29 20:10:25 2016

Response via: Initial Calibration



14DIOX1229BNA6.M Tue Jan 03 20:34:45 2017



Method Blank Raw Data

Quantitation Report (QT Reviewed)

Data Path: 0:\Organics\DATA\BNA6\2017\JAN\JAN02\

Data File : F601021721.D

Acq On : 3 Jan 2017 1:18 am

Operator : BNA6:SF Sample : WG963084-1

Sample : WG963084-1
Misc : WG964509,WG963084,ICAL13258
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 03 19:54:08 2017

Quant Method: 0:\Organics\DATA\BNA6\2017\JAN\JAN02\14DIOX1229BNA6.M

Quant Title : Semivolatiles by GC/MS QLast Update : Thu Dec 29 20:10:25 2016

Response via: Initial Calibration

Sub List : Default - All compounds listed

Compound	R.T. QIon	Response	Conc Units Dev(Min)
Internal Standards 1) 1,4-Dioxane-d8 (IS) 3) 1,4-Dichlorobenzene-d4	9.065 64 15.707 152	54499 48054	500.000 ng/mL -0.04 500.000 ng/mL -0.01
System Monitoring Compounds 4) 1,4-dioxane-d8 Spiked Amount 500.000	9.065 64 Range 15 - 115		531.831 ng/mL -0.04 ry = 106.37%
Target Compounds 2) 1,4-dioxane	0.000	0	Qvalue N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed

14DIOX1229BNA6.M Tue Jan 03 20:34:37 2017

Sub List : Default - All compounds listed Reviewed)

Data Path: O:\Organics\DATA\BNA6\2017\JAN\JAN02\

Data File : F601021721.D

Acq On : 3 Jan 2017 1:18 am

Operator : BNA6:SF Sample : WG963084-1

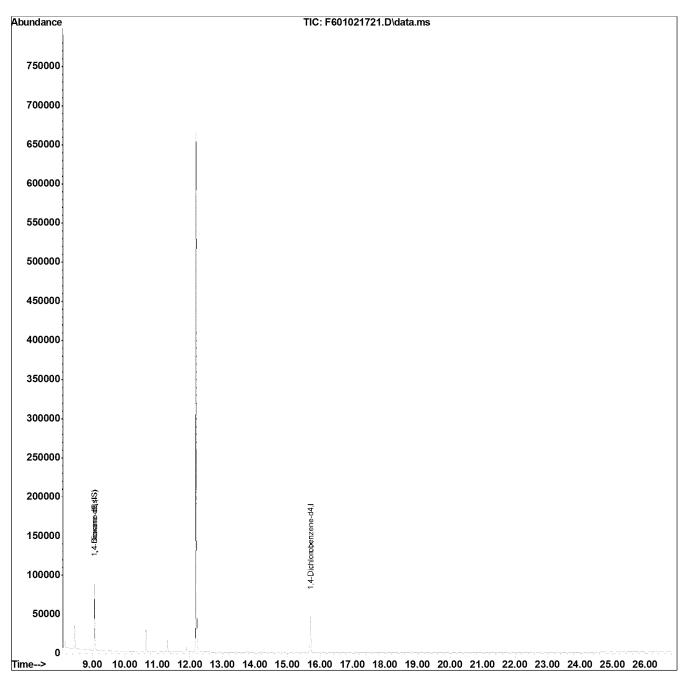
Misc : WG964509, WG963084, ICAL13258 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 03 19:54:08 2017

Quant Method: O:\Organics\DATA\BNA6\2017\JAN\JAN02\14DIOX1229BNA6.M

Quant Title : Semivolatiles by GC/MS QLast Update : Thu Dec 29 20:10:25 2016

Response via: Initial Calibration



14DIOX1229BNA6.M Tue Jan 03 20:34:37 2017

ATTACHMENT C – DATA VALIDATION REPORTS



E-Mail Date: 2017-01-11

E-Mail To: tim.roeper@cornerstoneeg.com

cc:

U.S. Mail: Tim Roeper

Cornerstone Environmental Group 100 Crystal Run Road, Suite 101 Middletown, NY 10941

ANALYTICAL DATA VALIDATION REPORT
Ringwood Mines/Landfill
Ford Motor Company
CLIENT PROJECT NUMBER – 140802-018
CADENA PROJECT E203361
SAMPLES COLLECTED DECEMBER 2016
SUBMITTAL #: L1641090

PREPARED BY: CADENA, INC.

1099 Highland Drive Ann Arbor, MI 48108 Telephone: 517-819-0356

Fax: 734-975-6709

Contact: Jim Tomalia (jtomalia@cadenaco.com)

Date: 2017-01-11 www.CADENACO.com

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ATTA	CHME	NT B VALIDATION CHECKLIST SUMMARY GRID	

1.0 INTRODUCTION

The following document details an assessment of the analytical data reported by ALPHA Analytical Laboratory Mansfield and Westborough MA the data in the submittals listed below which were collected from the Ringwood Mines/Landfill site as noted. The sampling and analysis summary listing sample ID's and testing as related to the laboratory submittal numbers is presented in Appendix 1. The summary of all of the field sample results and qualifiers associated with this submittal is presented in Appendix 3. Executive summary of qualified d ata only is reported in Appendix 4. Lab deliverables relevant to this submittal are included as attachments at the end of this report.

Table 1.1

		Collection Date	GCMS SVOC
Lab Sample ID	Sample ID	(mm/yy/dd)	SIM
L1641090-01	B-2016-1-5-5.5	12/13/2016	Х
L1641090-02	B-2016-1-9-9.5	12/13/2016	X
L1641090-03	B-2016-1-13.5-14	12/13/2016	Х
L1641090-04	B-2016-1-20-20.5	12/14/2016	Х
L1641090-05	B-2016-2-4.5-5	12/13/2016	Х
L1641090-06	B-2016-2-11-11.5	12/13/2016	Х
L1641090-07	B-2016-2-16.5-17	12/13/2016	X
L1641090-08	B-2016-2-21.5-22	12/14/2016	Х
L1641090-09	B-2016-3-5.5-6	12/14/2016	Х
L1641090-10	B-2016-3-9.5-10	12/14/2016	X
L1641090-11	B-2016-3-14-14.5	12/14/2016	Х
L1641090-12	B-2016-4-8.5-9	12/13/2016	Х
L1641090-13	B-2016-4-11.0-11.5	12/13/2016	Х
L1641090-14	B-2016-4-15-15.5	12/13/2016	х
L1641090-15	B-2016-4-20-20.5	12/13/2016	х
L1641090-16	B-2016-4-23.5-24	12/13/2016	х
L1641090-17	B-2016-55-1	12/14/2016	х
L1641090-18	B-2016-5-11-11.5	12/14/2016	х
L1641090-19	B-2016-5-15-15.5	12/14/2016	х
L1641090-20	B-2016-6-4.5-5	12/15/2016	х
L1641090-21	B-2016-6-1.5-2	12/15/2016	Х
L1641090-22	B-2016-7-9-9.5	12/15/2016	x
L1641090-23	B-2016-7-11.5-12	12/15/2016	х
L1641090-24	B-2016-8-11-11.5	12/15/2016	х
L1641090-25	B-2016-8-9-9.5	12/15/2016	Х
L1641090-26	B-2016-8-4.5-5	12/15/2016	х
L1641090-27	B-2016-9-6-6.5	12/15/2016	Х

1	1	l	l i
L1641090-28	B-2016-9-2-2.5	12/15/2016	Х
L1641090-29	B-2016-10-4-4.5	12/14/2016	Х
L1641090-30	B-2016-10-9-9.5	12/14/2016	х
L1641090-31	B-2016-10-11.5-12	12/14/2016	х
L1641090-32	B-2016-10-20-21.5	12/14/2016	х
L1641090-33	B-2016-11-5-5.5	12/15/2016	х
L1641090-34	B-2016-11-11-11.5	12/15/2016	Х
L1641090-35	B-2016-12-5.5-6	12/15/2016	Х
L1641090-36	B-2016-12-4-4.5	12/15/2016	х
L1641090-37	B-2016-13-5-5.5	12/14/2016	х
L1641090-38	B-2016-10-10.5	12/14/2016	х
L1641090-39	B-2016-15-15.5	12/14/2016	Х
L1641090-40	B-2016-14-4-4.5	12/15/2016	х
L1641090-41	B-2016-14-10-10.5	12/15/2016	Х
L1641090-42	DUP-1	12/14/2016	Х
L1641090-43	DUP-2	12/15/2016	Х

Table 1.2 below lists the proje ct-specific analytes or analyte lists associated with the methods referenced in Table 1.1:

Table 1.2				
Parameter	Reference Method	AnalyteListing		
Semi-Volatile Organics	OSW-8270D/SIM - ISOTOPE DILUTION	1,4-Dioxane only		

All "OSW" analytical methods were referenced from "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", Third editions final update IV or latest revision (with all subsequent revisions). The "SM" analytical method was referenced from the "Standard Methods for the Examination of Water and Waste water", latest promulgated revision. "EPA" methods were referenced from the revisions noted.

Laboratory Standard Operating Procedures (SOPs) associated with the methods utilized for this laboratory submittal were not available to CADENA for the purpose of validating this SDG.

Level IV data review provides a comprehensive or extensive review of the analytical data allowing for the complete reconstruction of the chemical analysis.

All of the data that was recalculated was consist ent with the reported results to within at least 2 significant figures. Final results may not recalculate exactly beyond this level of precision, in some cases, due to differences in available significant figures between the hardcopy raw data provided and the data utilized for calculations by the laboratory that came directly from the instrument. A table of the laboratory documents reviewed in preparing this report is included in Appendix 2.

The data was reviewed in accordance with the analytical methods and the documents listed below: (NOTE: laboratory criteria – control limits – were utilized to evaluate the data where

available. Comparison to NFG criteria are noted when lab criteria was not available or for informational purposes when lab data exceeds NFG criteria).

- i.) "Standard Operating Procedure HW -6 Rev12 March 2001: CLP Organics Data Review and Preliminary Review" USEPA Region 2 as identified in project QAPP.
- ii.) "Standard Operating Procedure HW -2, Rev11, Jan 1992: Evaluation of Metals Data for the CLP Program" as identified in the project QAPP.

The Level VI review findings are summarized in the Executive Summary section below.

Process controls for the validation review of the level 4 laboratory data package are referenced in the tables by method/analytical group within the body of this report.

Definitions for data qualifiers that may have been incorporated into the data tables for this report are noted below:

CADENA Valid Qualifiers

Valid Qualifiers	Description
	Less than the reported concentration.
>	Greater than the reported concentration.
В	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

1.1 VALIDATION QUALIFIER EXECUTIVE SUMMARY

VALIDATION SUMMARY

GCMS SVOC/SIM

No additional qualifications were made beyond those determined from level 2 verification review as noted below.

The following observations **DID NOT** result in qualification but were noted durin g the validation review:

GCMS SVOC-SIM

GENERAL METHODOLOGY – Laboratory used GCMS SVOC method 8270D -SIM with method 35 70 prep. The 1,4 -dioxane analyte concentration was quantitated against the 1,4- dioxane-D8 surrogate which was also used as the internal standard. Method is considered to be isotope dilution however the "surrogate as internal standard" technique is not considered to be the industry standard quantitation approach. This would be considered to be a "results corrected for percent recovery" quantification technique so data generated using these calculations would not be comparable to field sample results generated by conventional internal standard quantification techniques (high bias of field sample results would be expected using this quantification technique).

Introducing the internal standard, 1,4 -dioxane-d8 prior to sample extraction treats the internal standard as a surrogate so precludes using the 50% to 200% internal standard recovery rule as referenced. The internal standard recovery rule is therefore applied only to the surrogates associated with samples that had internal standards injected prior to analysis, and this data is provided in the Level 4, Form 8 Internal Standard and RT summary table. If the 1,4-dioxane-d8 data is to be legitimately considered to be an internal standard as well as surrogate it should, at a minimum, be subject to the 5 0%-200% response (recovery) criteria listed in the method. The current lower control limit for this internal standard as a surrogate is 15%. In the case of this lab submittal the internal standard responses for ALL of the field samples were within the 5 0%-200% of daily CCV internal standard response criteria so the data is considered to be in compliance with method criteria.

VERIFICATION SUMMARY

A level 2 data package was evaluated prior to receipt of the level 4 laboratory data package and the following findings were reported:

GCMS VOC samples -004, -006, -007, -011, -013, -014, -015, -016, -017, -018, -019, -021, -022, -024, -029, -031, -032, -037 and all QC batch method blank and LCS SURROGATE recoveries were outliers biased high for at least 1 surrogate. Associated client sample results were non-detect so qualification was not required based on these high bias QC outliers.

2.0 SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs) – METHOD SW846 8270D -SIM analysis with ISOTOPE DILUTION – GENERAL QC REQUIREMENTS See Attachments for submittal-specific review summary of QC requirements noted below The target analyte list was defined by the client-project as 1,4-dioxane.

2.1 CALIBRATION – GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) SVOCs

2.1.1 TUNING AND MASS CALIBRATION – GC/MS SVOCs

Tuning compounds were analyzed at the required frequency and met the tuning criteria specified in the method without exception.

2.1.2 INITIAL CALIBRATION – GC/MS SVOCs

Initial calibration data for SVOCs met the method criteria for instrument sensitivity, retention time drift and linearity of response unless noted otherwise in verification/validation summary.

2.1.3 INITIAL CALIBRATION VERIFICATION – GC/MS SVOCs

Initial calibration verification (ICV) standards for SVOC analyses were reviewed and met criteria specified by the laboratory with no exceptions.

2.2 CONTINUING CALIBRATION – GC/MS SVOCs

Continuing calibration standards were analyzed at the required frequency and the results met the criteria for instrument sensitivity and linearity of response unless noted otherwise in verification/validation summary

2.3 INTERNAL STANDARDS – GC/MS SVOCs

Internal standard (IS) data were reviewed and met criteria for retention time and response. See executive summary for information concerning quantitation technique associated with internal standards.

2.4 SURROGATE SPIKE RECOVERIES – GC/MS SVOCs

If surrogate recoveries are outside of established control limits, presumably due to matrix effects, these interferences must be confirmed by sample re -analysis or other acceptable standard techniques.

If in order to overcome sample matrix interferences or to quantitate elevated target compound levels for an investigative sample, the surrogate results are diluted to below the laboratories limits of quantitation, these surrogate results will not be utilized to qualify data.

All surrogate recoveries were quantitated against the 1,4 -dichlorobenzene-d4 internal standard and were within the established laboratory control limits unless noted otherwise in

verification/validation summary. Note: surrogate analyte responses (1,4 -dioxane-D8) were also used as internal standards.

2.5 LABORATORY CONTROL SAMPLE ANALYSES - GC/MS SVOCs

A laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) were prepared and analyzed for the target analyte SVOCs. The LCS recoveries and LCS/LCSD RPD were within the laboratory control limits for all compounds of interest unless noted otherwise in verification/validation summary.

2.6 MATRIX SPIKE/MATRIX-SPIKE-DUPLICATE ANALYSES - GC/MS SVOCs

NOTE: MS/MSD QC samples were not analyzed as part of this QC batch.

Validator does not have enough information regarding the nature and consistency of the investigative field samples to apply the valid qualifiers to additional samples beyond the parent sample for the MS/MSD outlier. The end data user must determine whether or not to extend qualification based on knowledge of the investigative field samples and project requirements.

2.7 FIELD QA/QC – FIELD DUPLICATE ANALYSES - GC/MS SVOCs

There were no field duplicate comparisons performed as part of this validation request.

2.8 TARGET COMPOUNDS AND REQUIRED LIMITS OF DETECTION - GC/MS SVOCs

All target analytes were reported based on comparison to project-specific target analyte requirments.

2.9 COMPOUND IDENTIFICATION AND QUANTITATION - GC/MS SVOCs

All laboratory target compound identifications and quantitation for the client samples reviewed were acceptable without exception.

2.10 TENTATIVELY IDENTIFIED COMPOUNDS - GC/MS SVOCs

Not required for this sampling event or laboratory submittal.

2.11 BLANKS – METHOD/FIELD/CALIBRATION - GC/MS SVOCs

Method blanks are evaluated if detected above the MDL. Client sample results that are less than 5 times the amount found in the blank for organic analystes (10X if analyte is considered to be a common lab contaminant) or less than 10 times the amount found in the blank for inorganic/metals analysis are flagged as non-detect at the RL with a UB flag if sample result is less than RL or non-detect at the concentration reported with a B flag if sample result is above the RL. See verification/validation summary for findings specific to this submittal.

3.0 REPRESENTATIVENESS EVALUATION

Representativeness is a qualitative evaluation of whether the data represent s actual environmental conditions. Representativeness was evaluated using the criteria noted in the following sections.

Representativeness was also evaluated by analysis of laboratory method blanks and field equipment blanks. Laboratory method blanks and field equipment blanks are used to identify sources of contamination not associated with environmental conditions.

3.1 SAMPLE PRESERVATION AND HOLDING TIMES

Holding time criteria, which reflect the length of time after sample collection that a sample or extract remains representative of environmental conditions. Depending on the analysis, either one or two holding times were evaluated.

- i.) For those analyses that do not include a sample extraction, only one holding time was evaluated: the length of time between sample collection and analysis.
- ii.) For analyses that require sample extraction prior to analysis, two holding times were evaluated: the length of time from sampling until extraction and the length of time from extraction to analysis.

Holding times a re compared to standard method specific holding times accepted or recommended by the United States Environmental Protection Agency (USEPA). Those holding times outside of USEPA acceptance criteria are qualitatively evaluated to determine their effect on sample representativeness.

All sample extractions and/or analyses were performed wit hin the specified holding times unless noted otherwise in verification/validation summary.

EPA Sample Holdin	g Time and	Preservation.	Requirements

Parameter	Reference Method	Matrix	Preservation & Storage	Holding Times
				14 days Extraction
Semi-volatile Organics by GCMS	OSW-8270D-SIM	SOIL	Refrigeration 0-6 _o C	40 days Analysis

3.2 METHOD BLANK SUMMARY

Representativeness was also evaluated by analysis of laboratory method blanks and field equipment blanks. Laboratory method blanks and field equipment blanks are used to identify sources of contamination not associated with environmental conditions.

4.0 USABILITY AND COMPARABILITY

Usability of data was evaluated by assuring that all the analytical requests were met, samples were received in the proper condition, and all analyses were performed within the appropriate holding times unless noted otherwise in verification/validation summary

No data evaluated within this delivery group was considered unusable (qualified with an R flag) due to sample integrity, sample matrix interference or batch quality control issues unless noted otherwise in verification/validation summary.

5.0 QC SUMMARY

All sample results were compliant with the project specific QAPP standard (if available) for usability with exceptions defined by validation and verification qualifiers as applied. Please reference the following tables for a summary of the investigative field sample data and their valid qualifiers based on Level 4 technical review of the analytical data.

APPENDIX 1 (Sample Analytical Summary – SAS table)

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203361

Laboratory: ALPHA Laboratories-Mansfield

Laboratory Submittal: L1641090

	1	Collection Date	
1 - b C l - 1D	C		CCNAC CLICC CINA
Lab Sample ID L1641090-01	Sample ID B-2016-1-5-5.5	(mm/yy/dd) 12/13/2016	GCMS SVOC SIM
L1641090-01	B-2016-1-3-3.5 B-2016-1-9-9.5		x
		12/13/2016 12/13/2016	x
L1641090-03 L1641090-04	B-2016-1-13.5-14		x
	B-2016-1-20-20.5	12/14/2016	
L1641090-05	B-2016-2-4.5-5	12/13/2016	X
L1641090-06	B-2016-2-11-11.5	12/13/2016	X
L1641090-07	B-2016-2-16.5-17	12/13/2016	X
L1641090-08	B-2016-2-21.5-22	12/14/2016	X
L1641090-09	B-2016-3-5.5-6	12/14/2016	X
L1641090-10	B-2016-3-9.5-10	12/14/2016	X
L1641090-11	B-2016-3-14-14.5	12/14/2016	X
L1641090-12	B-2016-4-8.5-9	12/13/2016	X
L1641090-13	B-2016-4-11.0-11.5	12/13/2016	X
L1641090-14	B-2016-4-15-15.5	12/13/2016	X
L1641090-15	B-2016-4-20-20.5	12/13/2016	X
L1641090-16	B-2016-4-23.5-24	12/13/2016	X
L1641090-17	B-2016-55-1	12/14/2016	X
L1641090-18	B-2016-5-11-11.5	12/14/2016	X
L1641090-19	B-2016-5-15-15.5	12/14/2016	X
L1641090-20	B-2016-6-4.5-5	12/15/2016	X
L1641090-21	B-2016-6-1.5-2	12/15/2016	Х
L1641090-22	B-2016-7-9-9.5	12/15/2016	Х
L1641090-23	B-2016-7-11.5-12	12/15/2016	Х
L1641090-24	B-2016-8-11-11.5	12/15/2016	Х
L1641090-25	B-2016-8-9-9.5	12/15/2016	Х
L1641090-26	B-2016-8-4.5-5	12/15/2016	Х
L1641090-27	B-2016-9-6-6.5	12/15/2016	Х
L1641090-28	B-2016-9-2-2.5	12/15/2016	Х
L1641090-29	B-2016-10-4-4.5	12/14/2016	Х
L1641090-30	B-2016-10-9-9.5	12/14/2016	Х
L1641090-31	B-2016-10-11.5-12	12/14/2016	Х
L1641090-32	B-2016-10-20-21.5	12/14/2016	х
L1641090-33	B-2016-11-5-5.5	12/15/2016	х
L1641090-34	B-2016-11-11-11.5	12/15/2016	х
L1641090-35	B-2016-12-5.5-6	12/15/2016	Х
L1641090-36	B-2016-12-4-4.5	12/15/2016	х
L1641090-37	B-2016-13-5-5.5	12/14/2016	х
L1641090-38	B-2016-13-10-10.5	12/14/2016	х
L1641090-39	B-2016-13-15-15.5	12/14/2016	х
L1641090-40	B-2016-14-4-4.5	12/15/2016	Х
L1641090-41	B-2016-14-10-10.5	12/15/2016	Х
L1641090-42	DUP-1	12/14/2016	х
L1641090-43	DUP-2	12/15/2016	Х

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B-2016-8-4.5-5 (L1641090-26) Analyzed: 12/24/16 12:34	148
B-2016-9-6-6.5 (L1641090-27) Analyzed: 12/24/16 13:21	150
B-2016-9-2-2.5 (L1641090-28) Analyzed: 12/24/16 14:07	152
B-2016-10-4-4.5 (L1641090-29) Analyzed: 12/24/16 14:53	154
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B-2016-14-10-10.5 (L1641090-41) Analyzed: 12/25/16 03:51	178
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B-2016-1-5-5.5 (L1641090-01) Analyzed: 12/30/16 03:26	184
B-2016-1-9-9.5 (L1641090-02) Analyzed: 12/30/16 04:12	186
B-2016-1-13.5-14 (L1641090-03) Analyzed: 12/30/16 04:59	188
B-2016-1-20-20.5 (L1641090-04) Analyzed: 12/30/16 05:45	190
B-2016-2-4.5-5 (L1641090-05) Analyzed: 12/30/16 06:31	192
B-2016-2-11-11.5 (L1641090-06) Analyzed: 12/30/16 07:18	194
B-2016-2-16.5-17 (L1641090-07) Analyzed: 12/30/16 08:04	196
B-2016-2-21.5-22 (L1641090-08) Analyzed: 12/30/16 08:50	198
B-2016-3-5.5-6 (L1641090-09) Analyzed: 12/30/16 09:37	200
B-2016-3-9.5-10 (L1641090-10) Analyzed: 12/30/16 10:23	202
B-2016-3-14-14.5 (L1641090-11) Analyzed: 12/30/16 11:09	204
B-2016-4-8.5-9 (L1641090-12) Analyzed: 12/30/16 11:55	206
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APPENDIX 3 (Analytical Results Summary – ARS Table)

Analytical Results Summary

CADENA Project ID: E203361 Laboratory: ALPHA Laboratories - Mansfield Laboratory Submittal: L1641090

	Lab Sa		Die Name: B-2016-1-5-5.5 Diample ID: L1641090-01 Die Date: 12/13/2016			B-2016-1-9-9.5 L1641090-02 12/13/2016					B-2016-1-13.5-14 L1641090-03 12/13/2016					B-2016-1-20-20.5 L1641090-04 12/14/2016					B-2016-2-4.5-5 L1641090-05 12/13/2016			
	Analyte	Cas No.	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifie		
SC/MS SVOC																								
OSW-8270D3 1	,4-DIOXANE	123-91-1	ND	0.00849	mg/kg		ND	0.00857	mg/kg		ND	0.00873	mg/kg		ND	0.00815	mg/kg		ND	0.00762	mg/kg			
			L164109				L164109				L16410				B-2016-1	0-09			B-2016- L164109	90-10				
			12/13/2	Report		Valid	12/13/2	Report		Valid	12/14/2	Report		Valid	12/14/2	Report		Valid	12/14/2	Report		Valid		
			Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifie		
GC/MS SVOC OSW-8270DS	-18.4																							
	,4-DIOXANE	123-91-1	ND	0.00789	mg/kg		ND	0.00778	mg/kg		ND	0.00981	mg/kg		ND	0.00865	mg/kg		ND	0.00881	mg/kg			
			B-2016-	3-14-14.5 90-11			B-2016- L164109				B-2016- L16410	-4-11.0-11. 90-13	5		B-2016-4	4-15-15.5 10-14			B-2016- L164109	4-20-20.5 90-15				
			12/14/2	016			12/13/2	016			12/13/2	2016			12/13/2	016			12/13/2	016				
			Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifie		
GC/MS SVOC																								
OSW-8270DS 1	<u>,4-DIOXANE</u>	123-91-1	ND	0.00996	mg/kg		ND	0.00819	mg/kg	***	ND	0.00863	mg/kg	***	ND	0.00881	mg/kg	***	ND	0.00819	mg/kg			
				4-23.5-24			B-2016-					5-11-11.5				5-15-15.5			B-2016-					
			L164109 12/13/2				L164109				L16410				L164109				L164109 12/15/2					
			Result	Report Limit	Units	Valid Qualifier	Pacult	Report Limit	i inite	Valid Qualifier	Posuit	Report Limit	Units	Valid Qualifier	Posuit	Report Limit	Units	Valid Qualifier	Pasult	Report Limit	Units	Valid Qualifie		
55/115 51/05			nesun	Contro	Omis	Quanner	nesun	Conne	Omits	quanter	nesun	Cirric	Onics	Quanter	nesun	Linit	Onics	quamer	nesun	Linit	Omis	quuinc		
GC/MS SVOC OSW-8270DS	SIM																							
1	,4-DIOXANE	123-91-1	ND	0.00817	mg/kg		ND	0.00844	mg/kg		ND	0.00809	mg/kg		ND	0.00831	mg/kg		ND	0.00808	mg/kg			
			B-2016-				B-2016- L164109				B-2016- L16410	7-11.5-12 90-23			B-2016-6	8-11-11.5 90-24			B-2016- L164109					
			12/15/2	016			12/15/2	016			12/15/2	2016			12/15/2	016			12/15/2	016				
			Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifier	Result	Report Limit	Units	Valid Qualifie		
GC/MS SVOC																								
OSW-8270DS		422.04.4							4				41				4		N.B.					
1	,4-DIOXANE	123-91-1	ND	0.00814	mg/kg		ND	0.00785	mg/kg		ND	0.00957	mg/kg		ND	0.00883	mg/kg		ND	0.00801	mg/kg			
			B-2016-				B-2016- L164109				B-2016- L16410	9-2-2.5 90-28			B-2016-: L164109				B-2016- L164109	10-9-9.5 90-30				
			12/15/2	016		Valid	12/15/2	016		Valid	12/15/2	2016		Valid	12/14/2	016		Valid	12/14/2			Valid		
			Result	Report Limit	Units	Qualifier	Result	Report Limit	Units	Qualifier	Result	Report Limit	Units	Qualifier	Result	Report Limit	Units	Qualifier	Result		Units	Qualifie		
GC/MS SVOC																								
OSW-8270DS	<u>.4-</u> DIOXANE	123-91-1	ND	0.00832	ma/ka		ND	0.008	mg/kg		ND	0.00775	ma/ka		ND	0.00793	ma/ka		ND	0.00822	ma/ka			
	,+ 510/04142	123 31 1											IIIB/ NB								1118/118			
			B-2016- L164109	10-11.5-12 90-31	2		B-2016- L164109	:10-20-21.! 90-32	5		B-2016- L16410	·11-5-5.5 90-33			B-2016-: L164109	11-11-11.5 0-34	,		B-2016- L164109					
			12/14/2	016 Report		Valid	12/14/2	016 Report		Valid	12/15/2	2016 Report		Valid	12/15/2	016 Report		Valid	12/15/2	016 Report		Valid		
			Result		Units		Result		Units	Qualifier	Result		Units		Result		Units		Result		Units	Qualifie		
GC/MS SVOC																								
<u>OSW-8270DS</u> 1	,4-DIOXANE	123-91-1	ND	0.00887	mg/kg		ND	0.00868	mg/kg	***	ND	0.00906	mg/kg		ND	0.00825	mg/kg		ND	0.00881	mg/kg			
			R-2016-	12-4-4.5			B-2016-	13-5-5.5			B-2016	13-10-10.5			B-2016-	13-15-15.5			B-2016-	14-4-4 5				
			L164109	90-36			L164109	90-37			L16410	90-38			L164109	0-39			L164109	0-40				
			12/15/2	016 Report		Valid	12/14/2	Report		Valid	12/14/2	Report		Valid	12/14/2	016 Report		Valid	12/15/2	016 Report		Valid		
			Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifie		
GC/MS SVOC	CINA																							
<u>OSW-8270DS</u> 1	,4-DIOXANE	123-91-1	ND	0.00873	mg/kg		ND	0.00787	mg/kg		ND	0.00835	mg/kg		ND	0.00805	mg/kg		ND	0.00825	mg/kg			
			B-2016-	14-10-10.5	_ 		DUP-1				DUP-2													
			L164109	0-41			L164109				L16410													
			12/15/2	016 Report		Valid	12/14/2	Report		Valid	12/15/2	Report		Valid										
			Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier	Result	Limit	Units	Qualifier										
GC/MS SVOC OSW-8270DS																								

APPENDIX 4 (Qualified Analytical Summary table not required for this submittal)

APPENDIX 5 (Level 2 data package verification report)



January 04, 2017

Tim Roeper Cornerstone EG 100 Crystal Run Road Suite 101 Middletown, NY 10941

CADENA project ID: E203361

Project: Ford Ringwood Mines Project

Project number:

Client project scope reference: Sample COC only was used to define project analytical requirements.

Laboratory: ALPHA Laboratories - Mansfield

Laboratory submittal: L1641090

Sample date: 2016-12-13 2016-12-14 2016-12-15 Report received by CADENA: 2017-01-03

Initial Data Verification completed by CADENA: 2017-01-04

The following minor QC exceptions or missing information were noted:

GCMS VOC samples -004, -006, -007, -011, -013, -014, -015, -016, -017, -018, -019, -021, -022, -024, -029, -031, -031, -032, -037 and all QC batch method blank and LCS SURROGATE recoveries were outliers biased high for at least 1 surrogate. Associated client sample results were non-detect so qualification was not required based on these high bias QC outliers.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification , the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

43 Soil sample(s) were analyzed for GCMS SVOC-SIM Isotope dilution parameter(s).

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, LCS/LCD RPD, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at http://clms.cadenaco.com/index.cfm.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
>	Greater than the reported concentration.
В	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
J-	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
R	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

ATTACHMENT A CHAIN OF CUSTODY DOCUMENT(S)

(A)	NEW JERSEY CHAIN OF	Mahwah, NJ 07430: 35 Whitney			Page	1 f 5	D	ate Rec'o	ı,		_	ALDUA Inh#		
ΔιγιΑ ΔιγιΑ	CUSTODY	Albany, NY 12205: 14 Walker W Tonawanda, NY 14150: 275 Coo		5		در		in Lab	13/1	711	6	ALPHA JOB # L[641090		
Westborough, MA 01581 8 Walkup Dr.	Mansfield, MA 02048 320 Forbes Blvd	Project Information					Deliver	ables		Billing Information				
TEL: 508-898-9220	TEL: 508-822-9300	Project Name: Ford	Ringwood				图 1	NJ Full / Re	educed	Same as Client Info				
FAX: 508-898-9193	FAX: 508-822-3288	Project Location: Rive				***************************************	_ E	EQuIS (1 F	ile)	S (4 File)	PO#			
Client Information		Project # 140%02 - 0						Other						
Client: Cornerstone		(Use Project name às Pro					Regula	itory Requi	rement	Site Information				
Address: 100 Cryshi	Run Rd	Project Manager: Tim		······				SRS Reside	ential/Non l	Is this site impacted by				
Middle town W		ALPHAQuote #:					SRS Impac	t to Ground	dwater		Petroleum? Yes			
Phone: 845-695-		Turn-Around Time					□ ¹	NJ Ground	Water Qua	lity Sta	ındards	Petroleum Product:		
Fax:				NJ IGW SP	LP Leacha	te Crite	eria							
Email: Tim. Roeper acornes lonceq. com Rush (only if pre approved) # of Days:								Other						
These samples have been previously analyzed by Alpha							ANAL'	YSIS	· · · · · · · · · · · · · · · · · · ·			Sample Filtration		
For EPH, selection is		Other project specific re	equirements/	comments:			2 8					Done	o t	
REQUIRED:	is REQUIRED:						8278 va201					Lab to do	а	
Category 1	1,4-Dioxane	Please specify Metals o	or TAL.				~ £					Preservation	ľ	
Category 2	8011						PAH-					Lab to do	В	
							-PAH-827055m					(Please Specify below)	o t	
ALPHA Lab ID			Colle	ection	Sample	Sampler's	- N3						t	
(Lab Use Only)	Sa	ample ID	Date	Time	Matrix	Initials	A2-N3 A2-N3					Sample Specific Comments	- e	
41090-01	B-2016-	1-5-5.5	12/3/16	14:00	5	36	X							
-07	B-2016-	1-9-9.5	12/13/16	14:15	S	<i>5</i> G-	X							
-63	B-3016-	1-13-5-14	12/13/16	14:30	5	JC	X							
-04	8-2016-	-1-30-302	12/14/16	9:45	5	36	X							
-05	B-3016-	2-45-5	12/13/16	15:20	. క	56	X							
-06	B-2016-	2-11-11.5	12/13/16	15:35	5	56	χ							
-07	B-2016-	2 - 16.5-17	12 13 16	16.15	5	26	X							
	B - 2016 -	2 - 315-32	12/14/16	8100	ے	ブ	X							
709	8-2016-	3-5,5-6	12/14/16	11:02	5	76	X							
~10	B-2016-	3-9-5-10	12/4/4	ミロ	5	J6	Х			<u>L</u>				
Preservative Code: A = None	Container Code P = Plastic	Westboro: Certification N	o: MA935		Cor	ntainer Type	٨					Please print clearly, legib	oly	
B = HCl	A = Amber Glass	Mansfield: Certification N	lo: MA015		00,	italilei Type						and completely. Samples		
C = HNO ₃	V = Vial G = Glass					Preservative	Α					not be logged in and	11 006	
D = H ₂ SO ₄ E = NaOH	B = Bacteria Cup				reservative	^					turnaround time clock wil start until any ambiguities			
F = MeOH	C = Cube O = Other	Relinquişhed I	Date/	Time		Receive	d By:		Date	/Time	resolved. BY EXECUTIN	IG		
$G = NaHSO_4$ $H = Na_2S_2O_3$	E = Encore	John De		12/16/16	13:30	Sin	F.	ALL	x 17	6//6	17:13	THIS COC, THE CLIENT HAS READ AND AGREE		
K/E = Zn Ac/NaOH	D = BOD Bottle	Sato Pour 1/h	10k	12/16/1		TAN	10	riv	12-16		1800	TO BE BOUND BY ALPH		
O = Other		Tom take		2-1616	2250	Rober		wom	10/	16/18	2030	TERMS & CONDITIONS		
Form No: 01-14 HC (rev. 3	0-Sept-2013)	RONA	7	2/17/11		Box	-12	1	. Bi	17/16	02.35	(See reverse side.)		
nge 109 of 113		1 Comment	A	1.14			-1			<u> </u>				

ALPHA	NEW JERSEY CHAIN OF CUSTODY	Service Centers Mahwah, NJ 07430: 35 Whitney Albany, NY 12205: 14 Walker V Tonawanda, NY 14150: 275 Co	Vay	5	Page		0	ate Red in Lab	:'d \	211	116		***************************************	ALPHA Job# L1641090	6		
Westborough, MA 01581	Mansfield, MA 02048	Project Information					Delive	rables				Billing Information					
8 Walkup Dr. TEL: 508-898-9220	320 Forbes Blvd TEL: 508-822-9300	Project Name: Ford-	R. Melicand				R	NJ Full / I	Reduce	ed		Same as Client Info					
FAX: 508-898-9193	FAX: 508-822-3288	Project Location: Rive		•			EQuIS (1 File) EQuIS (4 File)							PO#			
Client Information		Project # \40802-	1	, 				Other	,	L)	,	F 0 #					
Client: Corners dem				***************************************				atory Rec	uiroma	ant		Site Information					
		(Use Project name as P						SRS Res			Pooldo	ntial		Is this site impacted by	L		
Address: 100 Crysd	AT RON RU	Project Manager: TW	, Kosba				1 =					muai		Petroleum? Yes			
Middle town, NY		ALPHAQuote #:		_			SRS Imp										
Phone: 845-695 -	- 0 <u>92</u> 5	Turn-Around Time					1 =	NJ Groun					s	Petroleum Product:			
-ax:		Standard	—`	Due Date:			י 🗆 ו	NJ IGW S	SPLP L	.eachat	e Crite	eria					
Email: 805-Tim. Roepu	acornostine acon	Rush (only if pre approved	t) 🔲	# of Days:				Other									
These samples have be				ANAL	YSIS						Sample Filtration	T					
For EPH, selection is REQUIRED: Category 1 Category 2	For VOC, selection is REQUIRED: 1,4-Dioxane 8011	Other project specific		equirements/comments:										☐ Done ☐ Lab to do Preservation ☐ Lab to do	t a l		
ALPHA Lab ID		mple ID	Colle	ection	Sample		- 1/3- SUCC 1/3- PAH					,		(Please Specify below)	o t t		
(Lab Use Only)		mple ib	Date	Time	Matrix	Initials	なな							Sample Specific Comments	е		
41090 -11	B-3016	-3-14-145	12/14/16	11:55	5	20											
· · · · · · · · · · · · · · · · · · ·	B-2016	-4-8-5-9	12/13/14	11,50	S	26											
-(3		4-110-115	12/13/16	11:30	S	26				1							
-14		-4-15-15.5	12/13/16	12:00	S	36-			1					·			
-15		-4 - 20-302	12/13/14	12:20	5	20	 		+	1					\top		
-16		-4 -23.5-24	12/0/16	12:30	5	36			+	+	+	 			+-		
-17		-5 - •5-1	12/4/16	10:12	S	76	╁		-	 		\vdash	\vdash		+		
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-20 Preservative Code:	Container Code	-6-45-5	12/15/16	10:16)	20			-			 			Щ.		
A = None 3 = HCl	P = Plastic A = Amber Glass	Westboro: Certification Nansfield: Certification N			Con	tainer Type	A							Please print clearly, legit and completely. Samples	-		
O = H ₂ SO ₄	V = Vial G = Glass B = Bacteria Cup				F	reservative	A							not be logged in and turnaround time clock wil start until any ambiguitie:			
1110011	C = Cube O = Other	Relinquished	Ву:	Date/	Time		Receive	ed By:			Date	/Time		resolved. BY EXECUTIN	NG		
- 11011004	C = Other E = Encore	Ohn Dil	`	12/16/16	1330	200	R	TAL	6	12/	16/10		3:3	THIS COC, THE CLIENT			
1 - 14a20203	D = BOD Bottle	A:	logu	14/6//4		Tor	16	7.		12-1		7	1200	HAS READ AND AGREE TO BE BOUND BY ALPE			
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								16117/16/2:35									

ДРНА	NEW JERSEY CHAIN OF CUSTODY	Albany, NY 12205: 14 Walker N	Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105					ate Rec' in Lab	و <i>ا</i> ۾		ALPHA Job# 41090					
Westborough, MA 01581 8 Walkup Dr.	Mansfield, MA 02048 320 Forbes Blvd	Project Information			Deliverables								Billing Information			
TEL: 508-898-9220	TEL: 508-822-9300	Project Name: Ford-	Ringwood		NJ Full / Reduced								Same as Client Info			
FAX: 508-898-9193	FAX: 508-822-3288	Project Location: Rim					4 二	EQuIS (1 I	le)	PO#						
Client Information		Project # \40802-					1 🗖 (Other	ŕ	_	,	.				
Client: Cornador	V.	(Use Project name as P	Regula	atory Requ	irement		Site Information									
Address: 100 Crysla		Project Manager: Tim						SRS Resid		n Resid	ential		Is this site impacted by			
Middle town N		ALPHAQuote #:	1			·	1 🗔	SRS Impa	ct to Grou	undwate	r		Petroleum? Yes			
Phone: 845-695-		Turn-Around Time						NJ Ground				,	Petroleum Product:			
ax:	<u> </u>	Standar	d 🔀	Due Date:				NJ IGW SI		-						
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These samples have be				" or Days.	· · · · · · · · · · · · · · · · · · ·	-	ANAL					\dashv	Sample Filtration			
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Category 1	1,4-Dioxane	Please specify Metals	UI IAL.					- 1		-		ı	Lab to do			
Category 2	8011						PA-Svec					- 1				
							65			İ			(Please Specify below)			
ALPHA Lab ID	9-	mple ID	Colle	ection	Sample	Sampler's	اج ج			į		- 1				
(Lab Use Only)	5	inple to	Date	Time	Matrix	Initials	42						Sample Specific Comments			
41090-71	B- 3	016-6-1.5-2	12/15/6	10.00	3	26	X									
-722	B-20	16-7-9-9,5	1215/16	8:40	S	56	X									
-73	B- 301	6-7-115-12	12/15/16	855	5	3 6	X									
-24	B -3	016-8-11-15	12/0/16	9:45	5	3 6	X					\neg				
-25	B-30	6-8-9-9-5	12/0/14	9:35	5	56	X					\dashv				
-26		16-8-45-5	12/5/16	9:20	3	36	X				17	\dashv				
727		16-9-6-65	12/15/16	10:55	5	36	₹		1			\dashv				
128		16-9-3-25	15/12/16	10:40	5	56	R				1 1	\neg				
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reservative Code:	Container Code	Westboro: Certification I		11.40					 		+	\dashv				
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= HCI = HNO ₃	A = Amber Glass V = Vial	Mansfield: Certification I	No: MAU15							-	+	-	and completely. Sample not be logged in and			
= H ₂ SO ₄	G = Glass				F	reservative	IA I						turnaround time clock wi			
= NaOH	B = Bacteria Cup												start until any ambiguitie			
= MeOH	C = Cube O = Other	Relinquished	Time		Receive	ed By:		Dat	e/Time		resolved. BY EXECUTIN					
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FAX: 508-898-9193	FAX: 508-822-3288	Project Location: Ring		•			1 🗋	EQuIS (1 File	e) [S (4 File)	PO# LIG41096		
Client Information		Project # 140802 - 0						Other			_		
Client: Cornerston	· e	(Use Project name as Pr		*		*	Regul	latory Require	ement	Site Information			
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Phone: 845-695-		Turn-Around Time						NJ Ground V	Vater Qu	ality Sta	ndards	Petroleum Product:	
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-33	B-2016 -	11-5-5.5	12/15/16	13:12	S	76	X						
-34	B-2016 -	11-11-115	12/15/16	13:30	5	26	X						
-35	8-2016-13	2-55-6	12/15/16	11:46	S	2.6	X						
-36	B-3016 -	12-4-4.5	12/15/14	11:30	5	3 G	X						
道: - 3 7	B-8016 -	13.5.5.5	12/14/18	13:15	5	26	X						
-38	B-2016-1	3 - 10-10.5	12/14/16	14:00	S	26	X						
- 39	B-3016-1	3-15-15.5	12/14/16	14:50	\$	26	X						
-40	B-2016-1	4-4-4.5	12/15/6	12:45	S	56	Х						
Preservative Code: A = None B = HCl	Container Code P = Plastic A = Amber Glass	Westboro: Certification N Mansfield: Certification N			Cor	itainer Type	Α					Please print clearly, legibly and completely. Samples	
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TEL: 508-898-9220	TEL: 508-822-9300	Project Name: Ford-	Ringwood				K	NJ Full /	Reduce	ed				Same as Client Info	
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Phone: 845 - 695 -		Turn-Around Time						NJ Grou	nd Wate	er Qual	ity Sta	ndards		Petroleum Product:	
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ATTACHMENT B VALIDATION CHECKLIST SUMMARY

	sub	criteria	general	
VALIDATED DATA	item	reference	observations	GCMS SVOC SIM
PROJECT SCOPE/LAB REQUIREMENTS				
SOW available?				2009
Scope validation criteria referenced				CLP-2001 organics, CLP- 1992 inorganics
Lab certifications required				New Jersey NJDEP- MA015/MA935
Lab single blind PE samples completed				NOT AVAILABLE
SAMPLING ISSUES				NOT EVALUATED
SAMPLE RECEIPT OBSERVATIONS				
holding times				ок
preservation				ок
temperature of cooler - degrees C				4.1
COC discrepancies				ок
sample integrity (containers, amounts)				4oz GLASS no pres
ANALYTICAL/PREP GENERAL				
prep batch		LAB		WG963086, WG963089, WG963107
prep date	+	LAB		20-Dec
analytical batch		LAB		WG964508, WG964509
analytical date		LAB		12/30,12/24, 12/25
instrument ID		LAB		BNA5
Instrument Tune		METHOD	tune	ок
installent rune			tailing,	1
Instrument Performance Checks		METHOD	degradation RRT, SPCC,	NA
ICAL (Initial Calibration Curve)	CURVE ID	METHOD	CCC, CURVE FITS,	ICAL13250
ICAL (Initial Calibration Curve)	CURVE DATE	METHOD		29-Dec
ICV (Initial Calibration Verification)		METHOD	max 30%	ок
CCV (Continuing Calibration Verification)		METHOD	max 20%/50%	ок
Target Compound Lists		SCOPE/COC		1,4-dioxane
Reporting Limits (RL/PQL/LOQ) compliant		SCOPE	mdl 4ug/kg	8ug/kg
Blanks- method/calibration	method blank	NFG		ок
LCS (Laboratory Control Spikes)		lab control limits	by method	40-140%, 30%
MS/MSD (Matrix Spikes)		lab control limits	by method	NO MS IN BATCH
		lab control limits	NA	NA
Sample duplicates Internal standard reponses/RRT	+	METHOD	50-200%	ок
Internal standard reponses/KKT		lab control	SVOC BN	OK
Surrogate recoveries		limits	surrogates	15-110%
Qualitative criteria met		METHOD		ок
TICS (Tentatively Identified Compounds)		METHOD		NA
TIC blanks		NFG		NA
Trip blanks		NFG		NA
Field blanks		NFG		NA
Field duplicates		SCOPE		NA
Post Digestion Spikes (PDS)		METHOD		NA
Serial Dilution (SD)		METHOD		NA
CRQL checks performed?		SCOPE		NA
E flagging required		LAB		NA
GENERAL QC TRACKING			12.0	
Control Limits		SCOPE	see above	LABORATORY
Certificates of Analysis for primary standards		VALIDATOR		NOT PROVIDED
Working/Intermediate standard prep calculations		VALIDATOR	prep log	ок
Prep technique		not specified	VARIES	3570
Prep sample volumes/mass		not specified	VARIES	5grams target
OVERALL				
Data Reportable?				YES
	1	1	·	1



E-Mail Date: 2017-01-11

E-Mail To: tim.roeper@cornerstoneeg.com

cc:

U.S. Mail: Tim Roeper

Cornerstone Environmental Group 100 Crystal Run Road, Suite 101

Middletown, NY 10941

ANALYTICAL DATA VALIDATION REPORT
Ringwood Mines/Landfill
Ford Motor Company
CLIENT PROJECT NUMBER – 140802-018
CADENA PROJECT E203361
SAMPLES COLLECTED DECEMBER 2016
SUBMITTAL #: L1641084

PREPARED BY: CADENA, INC.

1099 Highland Drive Ann Arbor, MI 48108 Telephone: 517-819-0356

Fax: 734-975-6709

Contact: Jim Tomalia (jtomalia@cadenaco.com)

Date: 2017-01-11 www.CADENACO.com

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ATTACHMENT A LAB DELIVERABLE REFERENCES INCLUDING CHAIN OF CUSTODY DOCUMENT(S) ATTACHMENT B VALIDATION CHECKLIST SUMMARY GRID								

1.0 INTRODUCTION

The following document details—an assessment of—the analytical data reported by—ALPHA Analytical Laboratory Mansfield and Westborough MA—the data in the submittals listed below which were—collected from—the Ringwood Mines/Landfill site—as noted. The sampling and analysis summary listing sample ID's and testing as related to the laboratory submittal numbers is presented in—Appendix 1. The summary of all of the field sample results and qualifiers associated with this submittal—is presented in Appendix 3. Executive summary of qualified d ata only is reported in Appendix—4. Lab deliverables relevant to this submittal are included as attachments at the end of this report.

Table 1.1

Lab Sample ID	Sample ID	Collection	Collection Time	GCMS SVOC
		Date		SIM
		(mm/yy/dd)	(hh:mm:ss)	
L1641084-01	PW-1	12/15/2016	7:30:00	X
L1641084-02	PW-2	12/15/2016	7:40:00	X

Table 1.2 below lists the project -specific analytes or analyte lists associated with the methods referenced in Table 1.1:

Table 1.2

Parameter Reference Method AnalyteListing
Semi-Volatile Organics OSW-8270D/SIM - ISOTOPE DILUTION 1,4-Dioxane only

All "OSW" analytical methods were referenced from "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", Third editions final update IV or latest revision (with all subsequent revisions). The "SM" analytical method was referenced from the "Standard Methods for the Examination of Water and Waste water", latest promulgated revision. "EPA" methods were referenced from the revisions noted.

Laboratory Standard Operating Procedures (SOPs) associated with the methods utilized for this laboratory submittal were not available to CADENA for the purpose of validating this SDG.

Level IV data review provides a comprehensive or extensive review of the analytical data allowing for the complete reconstruction of the chemical analysis.

All of the data that was recalculated was consistent with the reported results to within at least 2 significant figures. Final results may not recalculate exactly beyond this level of precision, in some cases, due to differences in available significant figures between the hardcopy raw data provided and the data utilized for calculations by the laboratory that came directly from the instrument. A table of the laboratory documents reviewed in preparing t his report is included in Appendix 2.

The data was reviewed in accordance with the analytical methods a data where the data where listed below: (NOTE: laboratory criteria — control limits — were utilized to evaluate the data where

available. Comparison to NFG cr iteria are noted when lab criteria was not available or for informational purposes when lab data exceeds NFG criteria).

- i.) "Standard Operating Procedure HW -6 Rev12 March 2001: CLP Organics Data Review and Preliminary Review" USEPA Region 2 as identified in project QAPP.
- ii.) "Standard Operating Procedure HW -2, Rev11, Jan 1992: Evaluation of Metals Data for the CLP Program" as identified in the project QAPP.

The Level VI review findings are summarized in the Executive Summary section below.

Process controls for the validation review of the level 4 laboratory data package are referenced in the tables by method/analytical group within the body of this report.

Definitions for data qualifiers that may have been incorporated into the data tables for this report are noted below:

CADENA Valid Qualifiers

Valid Qualifiers	Description
CECCI (CECAMINININININININININININININININININININ	Less than the reported concentration.
	Greater than the reported concentration.
В	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
NJ	Tentatively identified compound with approximated concentration.
$R \\ \dots \dots$	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

1.1 VALIDATION QUALIFIER EXECUTIVE SUMMARY

VALIDATION SUMMARY

GCMS SVOC/SIM

No additional qualifications were made beyond thos e determined from level 2 verification review as noted below.

The following observations **DID NOT** result in qualification but were noted durin g the validation review:

GCMS SVOC-SIM

GENERAL METHODOLOGY – Laboratory used GCMS SVOC method 8270D -SIM with method 3570 prep. The 1,4 -dioxane analyte concentration was quantitated against the 1,4- dioxane-D8 surrogate which was also used as the internal standard. Method is considered to be isotope dilution however the "surrogate as internal standard" technique is not considered to be the industry standard quantitation approach. This would be considered to be a "results corrected for percent recovery" quantification technique so data generated using these calculations would not be comparable to field sample result s generated by conventional internal standard quantification techniques (high bias of field sample results would be expected using this quantification technique).

Introducing the internal standard, 1,4 -dioxane-d8 prior to sample extraction treats the internal standard as a surrogate so precludes using the 50% to 200% internal standard recovery rule as referenced. The internal standard recovery rule is therefore applied only to the surrogates associated with samples that had internal standards injected prior to ana lysis, and this data is provided in the Level 4, Form 8 Internal Standard and RT summary table. If the 1,4-dioxane-d8 data is to be legitimately considered to be an internal standard as well as surrogate it should, at a minimum, be subject to the 50% -200% response (recovery) criteria listed in the method. The current lower control limit for this internal standard as a surrogate is 15%. In the case of this lab submittal the internal standard responses for both of the field samples were within the 50% -200% of daily CCV internal standard response criteria so the data is considered to be in compliance with method criteria.

VERIFICATION SUMMARY

A level 2 data package was evaluated prior to receipt of the level 4 laboratory data package and the following findings were reported:

There were no significant QC anomalies or exceptions to report.

2.0 SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs) – METHOD SW846 8270D
-SIM analysis with ISOTOPE DILUTION– GENERAL QC REQUIREMENTS
See Attachments for submittal-specific review summary of QC requirements noted below

The target analyte list was defined by the client-project as 1,4-dioxane.

2.1 CALIBRATION – GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) SVOCs

2.1.1 TUNING AND MASS CALIBRATION – GC/MS SVOCs

Tuning compounds were analyzed at the required frequency and met the tuning criteria specified in the method without exception.

2.1.2 INITIAL CALIBRATION – GC/MS SVOCs

Initial calibration data for SVOCs met the method criteria for instrument sensitivity, retention time drift and linearity of response unless noted otherwise in verification/validation summary.

2.1.3 INITIAL CALIBRATION VERIFICATION – GC/MS SVOCs

Initial calibration verification (ICV) standards for SVOC analyses were reviewed and met criteria specified by the laboratory with no exceptions.

2.2 CONTINUING CALIBRATION – GC/MS SVOCs

Continuing calibration standards were analyzed at the required frequency and the results met the criteria for instrument sensitivity and linearity of response unless noted otherwise in verification/validation summary

2.3 INTERNAL STANDARDS – GC/MS SVOCs

Internal standard (IS) data were reviewed and met criteria for retention time and response. See executive summary for information concerning quantitation technique associated with internal standards.

2.4 SURROGATE SPIKE RECOVERIES – GC/MS SVOCs

If surrogate recoveries are outside of established control limits, presumably due to matrix effects, these interferences must be confirmed by sample re -analysis or other acceptable standard techniques.

If in order to overcome sample matrix interferences or to quantitate elevated target compound levels for an investigative sample, the surrogate r esults are diluted to below the laboratories limits of quantitation, these surrogate results will not be utilized to qualify data.

All surrogate recoveries—were quantitated against the 1,4—dichlorobenzene-d4 internal standard and were within the establish—ed laboratory control limits—unless noted otherwise in verification/validation summary. Note: surrogate analyte responses (1,4-dioxane-D8) were also used as internal standards.

2.5 LABORATORY CONTROL SAMPLE ANALYSES - GC/MS SVOCs

A laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) were prepared and analyzed for the target analyte SVOCs. The LCS recoveries and LCS/LCSD RPD were within the laboratory control limits for all compounds of interest unless noted otherwise in verification/validation summary.

2.6 MATRIX SPIKE/MATRIX-SPIKE-DUPLICATE ANALYSES - GC/MS SVOCs

NOTE: MS/MSD QC samples were not analyzed as part of this QC batch.

Validator does not have enough information regarding the nature and consistency of the investigative field samples to apply the valid qualifiers to additional samples beyond the parent sample for the MS/MSD outlier. The end data user must determine whether or not to extend qualification based on knowledge of the investigative field samples and project requirements.

2.7 FIELD QA/QC – FIELD DUPLICATE ANALYSES - GC/MS SVOCs

There were no field duplicate comparisons performed as part of this validation request.

2.8 TARGET COMPOUNDS AND REQUIRED LIMITS OF DETECTION - GC/MS SVOCs

All target analytes were reported based on comparison to project-specific target analyte requirments.

2.9 COMPOUND IDENTIFICATION AND QUANTITATION - GC/MS SVOCs

All laboratory target compound identifications and quantitation for the client samples reviewed were acceptable without exception.

2.10 TENTATIVELY IDENTIFIED COMPOUNDS - GC/MS SVOCs

Not required for this sampling event or laboratory submittal.

2.11 BLANKS – METHOD/FIELD/CALIBRATION - GC/MS SVOCs

Method blanks are evaluated if detected above the MDL. Client sample results that are less than 5 times the amount found in the blank for organic analytes (10X if analyte is considered to be a common lab contaminant) or less than 10 times the amount found in the blank for inorganic/metals analysis are flagged as non-detect at the RL with a UB flag if sample result is less than RL or non-detect at the concentration reported with a B flag if sample result is above the RL. See verification/validation summary for findings specific to this submittal.

3.0 REPRESENTATIVENESS EVALUATION

Representativeness is a qualitative evaluation of whether the data represents actual environmental conditions. Representativeness was evaluated using the criteria noted in the following sections.

Representativeness was also evaluated by analysis of laboratory method blanks and field equipment blanks. Laboratory method blanks and field equipment blanks are used to identify sources of contamination not associated with environmental conditions.

3.1 SAMPLE PRESERVATION AND HOLDING TIMES

Holding time criteria, which reflec t the length of time after sample collection that a sample or extract remains representative of environmental conditions. Depending on the analysis, either one or two holding times were evaluated.

- i.) For those analyses that do not include a sample extraction, only one holding time was evaluated: the length of time between sample collection and analysis.
- ii.) For analyses that require sample extraction prior to analysis, two holding times were evaluated: the length of time from sampling until extraction and the length of time from extraction to analysis.

Holding times are compared to standard method specific holding times accepted or recommended by the United States Environmental Protection Agency (USEPA). Those holding times outside of USEPA acceptance criter ia are qualitatively evaluated to determine their effect on sample representativeness.

All sample extractions and/or analyses were performed wit hin the specified holding times unless noted otherwise in verification/validation summary.

T1 T2 A	C 1	TT 11.	783.0	Th	T .
HPA	Samnle	Halding	l ime and	Precervation	Requirements
	Samur	HUIUHE	i iiiic anu	i i coci vanon	ixuum emens

	Parameter	Reference Method	Matrix	Preservation & Storage	Holding Times	
					14 days Extraction	
Seı	mi-volatile Organics by GCMS	OSW-8270D-SIM	PAINT	Refrigeration 0-6 _o C	40 days Analysis	

3.2 METHOD BLANK SUMMARY

Representativeness was also evaluated by analysis of laboratory method blanks and field equipment blanks. Laboratory method blanks and field equipment blanks are used to identify sources of contamination not associated with environmental conditions.

4.0 USABILITY AND COMPARABILITY

Usability of data was evaluated by assuring that all the analytical requests were met, samples were received in the proper condition, and all analyses were performed within the appropriate holding times unless noted otherwise in verification/validation summary

No data evaluated within this delivery group was considered unusable (qualified with an R flag) due to sample integrity, sample matrix interference or batch quality control issues unless noted otherwise in verification/validation summary.

5.0 QC SUMMARY

All sample results were compliant with the project specific QAPP standard (if available) for usability with exceptions defined by validation and verification qualifiers as applied. Please reference the following tables for a summary of the investigative field sample data and their valid qualifiers based on Level 4 technical review of the analytical data.

APPENDIX 1 (Sample Analytical Summary – SAS table)

SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203361

Laboratory: ALPHA Laboratories-Mansfield

Laboratory Submittal: L1641084

		Collection Date	Collection Time	
Lab Sample ID	Sample ID	(mm/yy/dd)	(hh:mm:ss)	GCMS SVOC SIM
L1641084-01	PW-1	12/15/2016	7:30:00	Х
L1641084-02	PW-2	12/15/2016	7:40:00	Х

APPENDIX 2 (Laboratory Level 4 Data Package Table of Contents)

Table of Contents

Jersey Reduced Data Deliverable Fackage
Title Page
Table of Contents
Chain of Custody
External Chain of Custody
Lims COC (LN01)
Sample Receipt Tracking Report
Methodology Review
Method References
Laboratory Chronicle
Sample Receipt and Container Information
NJ DEP DKQP Summary Questionnaire
DKQP Summary Questionnaire
Conformance/Non-Conformance (Reliability) Summary
Conformance/Non-Conformance (Reliability) Report
Glossary
Glossary Report
Organics Analysis
GCMS 8270 SIM Analysis
Sample Results Summary
Form 1 - Organics
Tune Results Summary
Form 5 - Organics
Blank Results Summary
Form 4 - Organics
Standards Data Summary
Form 6 - Organics
Form 7 - Organics
Surrogate Summary
Form 2 - Organics
Batch QC Summary
Form 3 - Organics
Internal Standard Summary
Form 8 - Organics
Chromatograms
Sample Raw Data
PW-1 (L1641084-01) Analyzed: 01/03/17 03:25
PW-2 (L1641084-02) Analyzed: 01/03/17 04:08
Method Blank Raw Data É
Laboratory Method BI (WG963084-1) Analyzed: 01/03/17 01:18

APPENDIX 3 (Analytical Results Summary – ARS Table)

Analytical Results Summary

CADENA Project ID: E203361

Laboratory: ALPHA Laboratories - Mansfield

Laboratory Submittal: L1641084

Sample Name: PW-1 PW-2

 Lab Sample ID:
 L1641084-01
 L1641084-02

 Sample Date:
 12/15/2016
 12/15/2016

Report Valid Report Valid
Analyte Cas No. Result Limit Units Qualifier Result Limit Units Qualifier

GC/MS SVOC

OSW-8270C/D-SIM

1,4-DIOXANE 123-91-1 ND 7.17 ug/kg --- ND 6.96 ug/kg ---

APPENDIX 4 (Qualified Analytical Summary table not required for this submittal)

APPENDIX 5 (Level 2 data package verification report)



January 04, 2017

Tim Roeper Cornerstone EG 100 Crystal Run Road Suite 101 Middletown, NY 10941

CADENA project ID: E203361

Project: Ford Ringwood Mines Project - Paint

Project number:

Client project scope reference: Sample COC only was used to define project analytical requirements.

Laboratory: ALPHA Laboratories - Mansfield

Laboratory submittal: L1641084

Sample date: 2016-12-15

Report received by CADENA: 2017-01-04

Initial Data Verification completed by CADENA: 2017-01-04

There were no significant QC anomalies or exceptions to report.

Data verification f or the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods a s references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

2 Waste sample(s) were analyzed for GCMS SVOC-SIM Isotope dilution parameter(s).

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, LCS/LCD RPD, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at http://clms.cadenaco.com/index.cfm.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

CADENA Valid Qualifiers

Valid Qualifiers	Description
<	Less than the reported concentration.
	Greater than the reported concentration.
В	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration.
E	The analyte / Compound reported exceeds the calibration range and is considered estimated.
EMPC	Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.
	The result is an estimated quantity, but the result may be biased low.
JB	NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED
JH	The sample result is considered estimated and is potentially biased high.
JL	The sample result is considered estimated and is potentially biased low.
JUB	NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED
NJ	Tentatively identified compound with approximated concentration.
$egin{array}{cccccccccccccccccccccccccccccccccccc$	Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)
TNTC	Too Numerous to Count - Asbestos and Microbiological Results.
U	Indicates that the analyte / compound was analyzed for, but not detected.
UB	The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than 10x the blank concentration and is considered non-detect at the RDL.
UJ	The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.

ATTACHMENT A CHAIN OF CUSTODY DOCUMENT(S)

Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193 Client Information Client: Ford - Rive Address: Paters M	ine Road	Project Manager: Tim. Roeper				Reg	Date Rec'd in Lab Deliverables NJ Full / Reduced EQUIS (1 File) Other Regulatory Requirement SRS Residential/Non Residential SRS Impact to Groundwater					le)	Billing Information Same as Client Info Po # Site Information Is this site impacted by Petroleum? Yes		
100 crystal Run Rd, A Phone: 845 ~ 695 ~ Fax: Email: Tim, ADEDQ(a)	٥٤٢2	ALPHAQuote #: Turn-Around Time Standard Rush (only if pre approved)		Due Date # of Days] NJ G	round W	/ater Qua	ality Sta	andards		Petroleum Product:	
These samples have be For EPH, selection is REQUIRED: Category 1 Category 2		Other project specific re		comments:			0/58-70K-10	ALYSIS WE CITO, III						□ Done t □ Lab to do Preservation □ Lab to do	lotal Bot
ALPHA Lab ID (Lab Use Only)	Sa	mple ID	Colle Date	ction Time	Sample Matrix	Sampler's Initials	A2. A2.	3						Sample Specific Comments	t e
41084-01	PW-1 PW-2		12/15/16	ה':30 הייר	Paintwask	76	X								_
			शीवादा	7:40	Paint liable	26	X								
着 3種 - 4g - アミ - ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・							_						,		
# 2 E 4															_
										-					_
2 No. 194 194 194 194 194 194 194 194 194 194							_				-	\vdash			_
Preservative Code: A = None B = HCI C = HNO ₃ D = H ₂ SO ₄ E = NaOH	Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup	Westboro: Certification No Mansfield: Certification No		· · · · · · · · · · · · · · · · · · ·		tainer Type								Please print clearly, legibly and completely. Samples car not be logged in and turnaround time clock will not start until any ambiguities are	ot
E = NaOH F = MeOH $G = NaHSO_4$ $H = Na_2S_2O_3$ K/E = Zn Ac/NaOH O = Other Form No: 01-14 HC (rev. 36)	C = Cube O = Other E = Encore D = BOD Bottle	Relinquished E		Date, 12/16/16 12/16/16 12/16/16	Time (3:7) (6:7) 2250 (2:35	Port un	C. To	Leived By Lev Lon	tole	12-1	16-16 16-16 16/16	e/Time	3:3 800 pe :35	resolved. BY EXECUTING	

ATTACHMENT B VALIDATION CHECKLIST SUMMARY

VALIDATED DATA	sub	criteria	general	
VALIDATED DATA	item	reference	observations	GCMS SVOC SIM
PROJECT SCOPE/LAB REQUIREMENTS				
SOW available?				2009 CLP-2001 organics, CLP-
Scope validation criteria referenced				1992 inorganics New Jersey NJDEP-
Lab certifications required				MA015/MA935
Lab single blind PE samples completed				NOT AVAILABLE
SAMPLING ISSUES				NOT EVALUATED
SAMPLE RECEIPT OBSERVATIONS				
holding times				ок
preservation				ОК
temperature of cooler - degrees C	-			4.3 OK
COC discrepancies sample integrity (containers, amounts)	-			PLASTIC BAGS
ANALYTICAL/PREP GENERAL				LACTIO BAGG
		LAB		WG963084
prep batch prep date		LAB		20-Dec
analytical batch		LAB		WG964509
analytical date		LAB		3-Jan
instrument ID		LAB		BNA6
Instrument Tune		METHOD	tune	ок
			tailing,	
Instrument Performance Checks		METHOD	degradation RRT, SPCC,	NA
ICAL (Initial Calibration Curve)	CURVE	METHOD	CCC, CURVE FITS.	ICAL13258
rorte (initial Galloration Galve)	CURVE		, , , ,	
ICAL (Initial Calibration Curve)	DATE	METHOD		29-Dec
ICV (Initial Calibration Verification)	-	METHOD METHOD	max 30% max 20%/50%	ok lok
CCV (Continuing Calibration Verification)	-	METHOD	max 20%/30%	OK .
Target Compound Lists		SCOPE/COC		1,4-dioxane
Reporting Limits (RL/PQL/LOQ) compliant		SCOPE	mdl 4ug/kg	8ug/kg
Blanks- method/calibration	method blank	NFG		ок
LCS (Laboratory Control Spikes)		lab control limits lab control	by method	40-140%, 30%
MS/MSD (Matrix Spikes)		limits	by method	NO MS IN BATCH
Sample duplicates		lab control limits	NA	NA .
Internal standard reponses/RRT		METHOD	50-200%	ок
The standard repenses of the standard repenses		lab control	SVOC BN	
Surrogate recoveries		limits	surrogates	15-110%
Qualitative criteria met		METHOD		OK
TICS (Tentatively Identified Compounds)		METHOD NFG		NA
TIC blanks		NFG		NA NA
Trip blanks Field blanks		NFG		NA
Field duplicates		SCOPE		NA
Post Digestion Spikes (PDS)		METHOD		NA
Serial Dilution (SD)		METHOD		NA
CRQL checks performed?		SCOPE		NA
E flagging required		LAB		NA
GENERAL QC TRACKING				
Control Limits		SCOPE	see above	LABORATORY
Certificates of Analysis for primary standards		VALIDATOR		NOT PROVIDED
Working/Intermediate standard prep calculations		VALIDATOR	prep log	ок
Prep technique		not specified	VARIES	3570
Prep sample volumes/mass		not specified	VARIES	5grams target
OVERALL				
Data Reportable?				YES